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THE ALLERGY SYMPOSIUM

Introduction.

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In introducing this symposium on allergy I wish to caution those who may take this subject lightly, considering it somewhat as a figment of the allergist's imagination, that there is really something to it. When a child can die suddenly from a little bit of protein injected into its tissues, it behooves us at least to ask, what of this question called allergy. I was perfectly astounded at a recent meeting of perhaps fifty physicians, when the chairman asked for a show of hands of those who make sensitization tests for horse serum before giving antitoxins, that only four hands were raised. Three of those are at this meeting.

It is well to remark that it makes no difference to the tissues, in case they are sensitized to the substances introduced, whether they are proteins gaining admission to the blood streams by way of prophylactic inoculation against tetanus or whether they are proteins from food eaten and absorbed before being completely digested. The reactions appear to be identical. Both reactions may be dangerous or possibly only serious. It is probably more important, however, to recognize that the mild reactions are far more frequent than are the severe reactions and cause an endless amount of suffering; because of their mildness they are less spectacular and, hence, more difficult to recognize and much more difficult to diagnose completely.

The diagnosis is not simply a question of applying a few protein tests to an arm, nor is the treatment simply eliminating a few foods from the diet nor giving a few desensitizing injections. Diagnosis and treatment are both likely to be complicated; and the problems are met so often, by the general men and the various specialists, alone and as parts of other problems, that all medical men should be informed upon the subject.

There has accumulated a vast literature and collection of facts upon the subject. In the formal part of my remarks I shall endeavor to present to you what most of you haven't time to do for yourselves. By reading outstanding articles and attending such meetings as these, you should be able to get a working knowledge of allergy. My admonition is to listen carefully to the papers to follow. Because a report does not agree with your experience, or seems fantastic, do not dismiss it as not worth considering.

FOOD ALLERGY

(A Resume of the Literature; Personal Observations)

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Having read, by reference, abstract, or in the original, five hundred or more articles upon, or applying to, food allergy, I attempt a critical review and resume of important facts and theories of these articles. Observations and thoughts of my own will be introduced here and there as are applicable.

The seriousness of the problem deserves the most careful consideration. Osler wrote, "There may be 'death in the pot' from many causes." Funck said, "The most deadly poison most frequently administered is the daily food." Then there is that trite old saying, "Man digs his grave with his teeth!" Than diet and food problems there is none more important.

SYNONYMS

Used more or less synonymously are allergy, phenomenon of Arthus, anaphylaxis, atopy, sensitization and hypersensitivity; the term idiosyncrasy has come down from the ages bearing in its arms the phenomena now classed as allergic.

DEFINITIONS

The phenomenon designated allergic, it now seems, is an exudation, often marked, of serum and eosinophiles, with a contraction of smooth muscle fibers, produced by proteins or partial proteins meeting their antibodies in a tissue. My own definition has been: A quick type of inflammation set up by proteins. Rackmann's is: A capacity to develop sensitization to foreign substances.

There are two theories, says the editor of the Journal of the American Medical Association, to explain allergy: The meeting of the proteins and their antibodies are directly responsible for the tissue disturbance; and the union of the antigens and antibodies in the tissue forms histamine or histamine-like substances—designated "allergic hormones"—which cause the inflammation.

My own view has been that the antibodies in the tissues are really immunity factors, of the nature of enzymes, which destroy antigens; the destruction of the proteins—antigens in sensitized tissues is rapid; histamine or histamine-like bodies are produced from the antigens; they produce inflammation with a pouring of serum and eosinophiles into the tissue.

HISTORY

Fothergill in 1794 said that foods bring on sick headaches. Jenner in 1798 observed that a second inoculation of cowpox produced an inflamed area. Bateman in 1817 recorded that there is an internal cause for eczema. Magendie in 1839 produced death of rabbits by second injections of egg albumin with doses which would have had no serious effects as first injections.

Jonathan Hutchinson in 1884 described vomiting, abdominal distress, and a sinking sensation, as due to ingestion of extremely small amounts of egg, and spoke of idiosyncrasy, diathesis, and inheritance.

Orton in 1886 found egg-sensitive cases in three generations of one family with gastro-intestinal symptoms and headache; Koch observed a skin necrosis at times after injections of killed tubercle bacilli. Gould and Pyle in 1900 recorded that idiosyncrasies had been found to various foods, such as honey, nutmeg, strawberries, vinegar, coffee, citron, meat, apple, almond, egg, parsley, fig, and chocolate.

After the introduction of antitoxin by Von Behring in 1894, its use caused reactions which soon became known as serum disease. A number of the early workers with serum disease and other forms and problems of allergy, by priority, were Dunbar, Simon Flexner, Richet, Hericourt, Theobald Smith, Arthus, Von Pirquet, Schick, Wolff-Eisner, Rosenau, Anderson, Otto, Besredka, Steinhardt, Vaughan, Wheeler, Doerr, Russ, Friedeberger, Wells, Osborne, Novy, de Kruif, Schloss, Walker, Cooke, Van der Veer and Manwaring. The names of the modern workers are legion. Many of them will be mentioned in connection with the various problems which will be discussed.

TYPES OF FOOD ALLERGY

Asthma, since Feltzer's first suggestion in 1909 that anaphylaxis might explain it, has become generally accepted as a result of food or other allergy, or a combination.

Urticaria has also been regarded, for two decades or more, as due usually to food reactions.

Eczema—at least certain types of eczema—followed soon after urticaria into the allergy stable.

Angioneurotic edema seems to be safely classified as a sensitization phenomenon.

Gastro-intestinal symptoms, such as coated tongue, foul breath, canker sores, nausea, vomiting, heart-burn, diarrhea, pain, colic, flatulence, even constipation, have been definitely proved as due, far more often than suspected, to sensitizations. Even the prominent writers on these subjects have been too numerous to attempt to mention.

Migraine, although not so generally recognized as such, is certainly in many instances an allergic phenomenon, if we are to give credence to such workers as Eyermann, Alexander, Vaughan, Balyeat, Rowe, Schnabel, Barbarin, Buchanan, Beecher, Maloney, R. C. Brown, Tillotson, Liveing, Alvarez, Gay, and others. My own experiences strongly support this.

Epilepsy is following migraine to the atopy stall, we must believe, when we read the re-

ports upon it by Waldbott, Ward and Patterson, Pagniez, Mouzon and Trupin, and Boston and Henry, to mention but a few who have given convincing reports. I have had excellent results treating epilepsy on this theory.

Rhinitis and the common cold, it has been suggested by various writers—probably first by Walker, often may be allergic. I am convinced this is true. Harkovy says frequently occurring winter coughs and colds may be properly grouped with asthma, urticaria, rheumatism and angioneurotic edema.

Many have thought that mucous colitis is allergic and the meritorious reports by Balyeat, Hurst, Lyon, Barth, Hollander, Vaughan, Rowe, Duke, and others, go to prove that at least certain cases are. I have no doubt that many cases are allergic.

Pylorospasm and other intestinal-tract spasms, especially the infantile, are placed by Chisen and Breithaup, Ward, Drueck, and others, as anaphylactic; intestinal spasm has been seen by Ecker and Bisking, Eyermann, and others, and proven to be due to food reactions.

That peptic ulcer is allergic in many cases is supported by an astonishing amount of convincing work by Kern and Stewart, Levine, Moes, Ivy, Shapiro, Beach, Bronstein, Serby, Toy, Ward, and others. I have had for years such a conception.

Dysmenorrhea and other menstrual disturbances may be sensitization processes, according to Cooke, Rowe, D. R. Smith, Duke, and Benedict.

It was first suggested by Osler that the Henoch-Schoenlein purpura hemorrhagica might be anaphylactic. Alexander and Eyermann, Newhauser, Minot, Motolece, Lee, Pratt, Duke, Drueck, Lawson, Goldstein, Grace, Lenedict, Freemont, Smith, and Kohn, have presented much irrefutable argument supporting Osler. Pratt in a study of 100 cases of purpura, found that 30 per cent of them had associated urticaria, 15 per cent had erythema, and about 33 per cent had angioneurotic edema.

Psoriasis is not yet definitely in the allergy classification but it seems to be heading rapidly in that direction, judging from the reports of Schamberg, Kolmer, Ringer, and Raiziss, Janssion, Giard and Wartinaud, and Brook. My own experience is that psoriasis is an allergic phenomenon.

Meniere's disease, Duke, T. W. Clark, Malone, Yandell, and others, have found in certain cases to be due to reactions from food and other substances. Malone and Yandell's cases were proved to be from orris root. I have a man now with dizziness, somewhat of the Meniere's type, who was made much worse by a Karo-syrup diet for 24 hours and still worse by a milk diet for 24 hours. Diet manipulation is gradually improving him. Richet, Jr., and Cander, and others include dizziness as an allergic process.

Difficult feeding cases in childhood, La-Roche, Richet and Saint Girons, and Mitchell, say are often due to allergic tendencies of the infants.

Sinusitis may be caused by, or have its foundation laid by, allergy, according to Moore, Proetz, and others. My own observations make me support this.

Glomerular nephritis, in the opinion of Fishberg, may be from a protein sensitization.

Enuresis, Moore suggests, may be due to an allergic disturbance.

Certain cases of certain types of rheumatism are, in light of the reports of Oriel, Pemberton and Pierce, Custerman, Carr, Clark, Herry, Swift, Weintrand and Harkovy, undoubtedly due to allergy. I recall one case of acute joint pains miraculously relieved by eliminating orange from the patient's diet.

Cystitis and other urogenital allergy due to food has been reported by myself, Duke, Rowe, Sterling, Moore, Westphal, and others.

Eye disturbances—amblyopia, conjunctivitis, dimness of vision, scintillating scotomata, nystagmus, episcleritis, papillitis, strabismus, pain in eyes, intra-ocular hemorrhage, iritis, corneal ulcers and blindness—have been reported as allergic by Benedict, Balyeat, and Rinkel, myself, and others.

Pruritis, according to Vaughan, Rowe, and Andersen, may be due to food allergy. I have had positive proof of this.

Fever may result from allergy, according to Rowe and Haritanti. I have had one unmistakable case of fever from allergic reactions.

Facial neuralgia, according to Wilson and Kennedy, may be due to sensitization. I have had several cases which seemed to me most

likely allergic; treatment based on this theory was satisfactory in one case and definitely beneficial in two others.

I have one case of neuritis which it seems must be allergic.

Several workers have regarded acne as having allergic features at least in its etiology.

Undue fatigue may result from allergy, according to Vallery-Radot and Blaumantier and Rowe.

Kuskawski, Lintz, myself, and others, have suggested that hypertension may be due to allergy. Waldbott removed all allergens in several hypertension cases and the blood pressure fell. Restoring the reacting foods to the diets caused the return of the hypertension. Cohen, Fineberg, and Rudolph, on the other hand, eliminated all reacting foods from a series of hypertension cases with allergy and there was no improvement in blood pressures. The mere fact, however, that all apparent allergens were removed without benefit, does not disprove the theory of allergy as a cause of hypertension. Hypertension is such an enigma and so serious a malady that a theory as plausible as the allergy one should not be discarded until there is a better one to take its place. Hypertension is usually of long standing and long-standing allergies are notoriously difficult to respond to treatment.

Graham, Cole, Copper and Moore, Evermann, Gay, Rowe, and Drueck, have found allergic changes, in or about the gallbladder, giving a picture of cholecystitis.

Erythema multiforme is reported by Tzanck and Cord, and by Lyon and Bartle, as being due to allergy.

I have had one case of definite and fairly marked psychoneurosis which was cured by treating as an allergic case. Kennedy says angioneurotic edema occurs in the brain, giving hemiplegia, aphasia, paresthesia, vertigo, and psychoneurotic tendencies. Rowe and others refer to mental confusion in allergics. F. C. Smith speaks of speech confusion, memory defect, mental inertia, as associated with migraine. We are all familiar with the mental disturbance which is common with epilepsy.

I am inclined to disagree with Alexander in his statement that cardiac tissue is not affected by allergic reactions; I have had four cases of paroxysmal tachycardia that were successfully treated on the basis of this theory. Hochrein found diet manipulation helpful in treating tachycardia.

Mills says that a high protein diet after operations predisposes to the formation of thrombi and emboli. This observation may have extreme value.

Moore suggests that chorea and spasmophilia may be allergic.

ETIOLOGY

The direct cause of food allergy, of course, is food—probably entirely the proteins or their split products.

As to the indirect or predisposing causes, the literature contains relatively little that can be said to be proven. There are many theoretical suggestions, a considerable number of which have the weight of common sense. There is a fair amount of experimental facts which will be presented in the paragraphs on experimental work.

The predisposing factors which are mentioned in the literature have to do largely with the gastro-intestinal tract.

Liver inadequacy, probably in the destruction of protein and protein products which have been absorbed before complete digestion of them, seems to hold first place as a predisposing cause. This has been mentioned by Dennis and Moore, Rowe, Manwaring, Reeves, May, Shumaker and Wright, Barber and Oriel, Cramer, Diamond, Osman, T. R. Brown, and McClure and Heitsinger. There are experimental data to support these statements, which will be presented in the paragraphs on experimental work.

The use of too liberal quantities of food, especially of one or of a few foods, has been emphasized by various clinicians among whom are McCauley, Wallhauser, Rinkel and Balyeat, Rowe, Huber, and myself. Huber's case was interesting in that a mother conveyed to her infant, who had never nursed, a sensitization to peanuts by eating liberally of peanuts during the gestation period.

Digestive disturbances are considered as important by Dennis and Moore, McCauley, Hill, Oriel, myself, and others.

Abnormally active absorption power or increased permeability of the gastro-intestinal mucosa has been blamed by Schloss and War-

then, Sterling, Hill, Dennis and Moore, and Stokes and Pillsbury.

Inadequate secretion of hydrochloric acid has been regarded as highly important, and as more or less characteristic of allergic individuals, by myself, Stokes and Pillsbury, Criep, McElroy, Great Ormond Street Hospital of London, Duke, Brunner and Walzer, Rowe and Bray. Duke's case of perennial rhinitis seemed to hinge upon a lack of hydrochloric acid. Many workers have found that various allergics are benefited by supplying them with hydrochloric with their meals.

Beckman, Colby, Collier, Eggstein and the British Asthma Commission, regard the allergic state as an alkalosis and hence supply acids irrespective of their use as digestants. Colby regards the allergic state as parenteral indigestion, due to the lack of a proper catalyst and thinks hydrochloric acid introduced into the blood-stream acts as such.

The British Asthmatic Commission and Eggstein have found that there is first an acidosis which is superseded by an alkalosis in an allergic paroxysm. There are numerous clinicians, who have long regarded the allergic state as an acidosis. Not so long ago it was common practice to give for many of the various allergic conditions large amounts of alkalinizing drugs.

Gastro-intestinal infection is considered of importance, in predisposing to an absorption of protein and protein products, by Sterling, Anderson, Schears, Stokes and Pillsbury, Dennis and Moore.

In the minds of some of the observers, the gastro-intestinal tract may act as focus of infection and, like other foci of infection, produce an unexplainable something which upsets an equilibrium of the chemistry of the body. Mueller reports one patient, sensitive to five foods, who was cured of her atopic state by the extraction of her teeth. I have known of other definite cases of food allergy cured by removal of foci of infection.

Eating when nervous or irritable or fatigued, or when, for any reason, the state of mind inhibits digestion, has been mentioned repeatedly by Alvarez, by myself and others, as helping to cause allergy.

That foods not properly prepared for easy digestion, and the use of bran and roughage in general, may slow up digestion so as to permit of too great an absorption of them before being properly digested and ready for absorption, has been emphasized by Alvarez and by me.

Too much fat with a production of fatty acids, according to Hill, renders the alimentary mucosa unduly permeable and thus leads to sensitizations because of the necessity of the body's destroying the split proteins after they reach the tissues.

Illness of one sort or another may so reduce digestion powers, according to Alvarez, that protein material is absorbed in too great quantity before having reached the proper stage of digestion. Glen and I have advanced the conception that perhaps the food, or foods, one has been fed when ill, will likely be found among the reacters, if not the chief offenders. The gastro-intestinal mucosa in infants, Dennis and Moore think, is immature and highly permeable and hence allows undue amounts of incompletely digested protein material to enter the blood and lymph streams; this they think probably accounts for the great number of sensitizations in childhood.

Inadequate pancreas digestion is blamed by Sansum and Stokes and Pillsbury for the entrance of the incompletely digested proteins into the body. I have found the use of the pancreas substance of value in relieving various allergic symptoms.

Organic lesions of one part or another seem to predispose to sensitizations. Becker advises that skin allergies must not have irritants applied. Anderson speaks of organic lesions of the alimentary canal as predisposing. Rustin had a case in which pruritis of a hand followed a burn of that hand. White and Taub found that areas with fungous infections have a tendency to develop food sensitizations. I have called attention to the possibility that heavy metal ointments applied to the skin repeatedly may predispose to urticaria and eczema. I have a patient just now who has recently had a severe dermatitis from the application of a facial cream: although the lesions have almost completely disappeared, she is unable to wear her wrist watch because of the dermatitis which develops under it. She thinks it is the pressure which does the harm. The pressure may set up an injured condition

of that part of her skin which renders it highly susceptible to the metabolic products in her system not in sufficient quantities to cause trouble elsewhere. I have had the idea, however, that, in this case and other similar cases, it is not the metal to which the patient is sensitive, but that the absorbed metal and perhaps the pressure, may be sufficient to produce injury of the local cells and, hence, a predisposition to sensitization of that tissue to foods.

Bowel stasis—constipation—and intra-intestinal pressure may be responsible for an inhibition of digestion, and an undue absorption of incompletely digested protein, in the opinion of Manwaring, Beattie and McBride, Hettner and Kriz, Benson, Adam, Stokes and Pillsbury, and myself.

I have observed that autolyzed products, over-ripe foods, putrified foods, predigested foods, and so forth, led when eaten, to prompt and often violent allergic reactions. (This work is yet to be reported in detail.) It has seemed to me also that perfectly good food may undergo putrefaction in a jejunum which contains bacteria and that this may produce fairly prompt and perhaps intense allergic reactions. This, I have thought, might explain the value of using liquid petrolatum or other mild laxatives in small amounts regularly with meals, as suggested by Richet, Jr., and Conder. Benson has the thought that protein disintegration may be excessive or abnormal because of constipation, and cause sensitizations. Sulmann calls attention to the dangers of putrefying protein in the alimentary canal. He has isolated a "putrid colloid." Bastedo says headaches from decomposition products in the intestines are common and I would say that this is probably an observation with which many, many persons will agree.

A nutrition-metabolic imbalance is largely responsible for anaphylaxis in the opinion of Schamberg, Kolmer, Ringby, and Raizis, Mccauley, Collier, Spangler, Kraus, Miller and Colby. Just exactly what is meant by the imbalance is not explained. The probabilities are that most of the workers quoted already in this chapter should be included in believing that there is a nutrition-metabolism imbalance, although they have not specifically so stated. Many of them, if not most or all of them, would also accept Spangler and Manwaring's statement that there is an immunologic problem connected with the nutritional and the metabolic.

Lintz, Burn, Pottenger, Eppinger, Hess and many others, have implicated the vegetative nervous system as having a weakness or tendency which causes its host to become an allergic individual.

There are others who think that the endocrine system is in some way at fault. Gay thinks that hypothyroidism is common in predisposing to allergy. Many have observed, recently Mueller, Allen, and others, that women are prone to be unduly allergic during their menstrual periods. In a conversation a year or so before his death, on the question of attempting to bring order from the chaotic metabolism of allergy, Engelbach said he believed it to be quite within the realm of possibility that various endocrine disturbances might be responsible for the mal-metabolism which leads to allergy, and that proper treatment of allergies with substitution endocrine therapy might be found advantageous.

The part that heredity probably plays has been mentioned by such a mob of workers in the allergic field that it takes a brave man even to admit that heredity is not all-important. There seems, however, to be a growing thought that individuals born non-allergic and with no allergic tendency, may become allergic with the proper combination of circumstances. Rantner and others have concluded that an hereditary tendency may be absent and yet the person may develop atopy. This has been my own opinion.

If the allergy state is nearly always an inherited state in the human race, is it not also the same in animals, and why are there not more failures in rendering experimental animals anaphylactic? Discussion of heredity will be found in the next section.

Mueller observed that sensitization to more than one food, often, if not usually, was necessary before an allergic state became manifest. He had a patient sensitive to wheat and to potato; the removal of either would relieve her allergic state.

My own view is that the predisposing causes may, and likely do, have five important divisions: heredity, diet, digestion, metabolism

and immunity. The first three of these points will be discussed later under the appropriate headings. I have regarded metabolism as being deranged possibly somewhat like that in diabetes. Mayhap an enzyme, a vitamin, or an endocrine hormone may be the missing substance. It may be rare for two cases to have the same thing missing. So many cases of food or pollen allergy have been benefited, even cured, by removal of foci of infection or by use of vaccines, that the suggestion has been forced upon me that the problem of allergy is partially immunologic. Manwaring in this connection comments that there is an immunologic relationship between cellular enzymes, antibodies, and antigens.

HEREDITY

Dennis and Moore found that over 50 per cent of their allergics gave positive family histories. Spangler studied the histories of 100 epileptics; among the parents and grandparents, there were eleven epileptics, thirty-five asthmatics, seven with hay-fever, fourteen with urticaria, six with eczema, and sixty-six with migraine. Buchanan had forty-six families with the migraine-epilepsy syndrome; sixty-four of 262 children had epilepsy or migraine, a Mendelian ratio of 3.09 to one. Cooke and van der Veer conclude that hypersensitiveness is transmitted as a dominant characteristic according to the Mendelian law in about 50 per cent of the cases; Weringer says it is so frequently familial that its being an hereditary cellular affair seems likely. Rowe remarks that the sensitized person may have offspring not sensitive, but that there is a tendency to transmit sensitization.

Piness and Miller investigated family histories of a series of cases and concluded that 41 per cent gave positive family histories. Adamson and Sellers think that the evidence is that epilepsy has an hereditary base to a slightly less extent than asthma. Aldred-Brown and Munro studied fifty cases of rheumatism and four per cent had allergic histories.

Longcope thinks the allergic inheritance is of a quality of tissue rather than of a specific hypersensitiveness. Allen regards migraine and asthma as hereditary maladies. Waldbott found hypertension in allergic families. Hill regards heredity as relatively unimportant in childhood eczema. Harkovy writes that all persons probably have the ability to acquire sensitiveness in one form or another.

Rather and Greenburgh say that identical sensitizations exist in mother and child, transferred through the placenta; the antibodies so passed have the qualities of Prausnitz-Kuestner antibodies. Congenital allergy may be either active or passive and is the same as sensitizations acquired through inhalation, ingestion, or injection; hence, it follows that allergy is not always dependent upon chromosome inheritance.

My own impressions are that, while an hereditary tendency toward allergy must certainly predispose toward the development of sensitizations, a person may have no hereditary predisposition and yet develop sensitizations.

(Continued in May Southwestern Medicine)

SOME PRACTICAL ASPECTS OF BRAIN TUMOR DIAGNOSIS

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Address delivered at Fall Clinical Conference of the Kansas City Southwest Clinical Society, October 5th, 1933.

There are two types of brain tumor symptoms: 1. General symptoms; 2. Focal symptoms. The general symptoms, which may be present in any brain tumor, are due to increased pressure within the inelastic brain case, regardless of the position of the tumor. These include the classic symptoms of headache and vomiting. The other group, the focal symptoms, are due entirely to the location of the tumor under consideration; that is, the exact part of the brain which is being irritated or destroyed. A focal symptom has nothing to do with the pathology; it might be equally well due to syphilis or to a cerebral hemorrhage if it occurred in the same situation as the tumor. Because the general symptoms, the symptoms of increasing intracranial pressure, indicate that something is growing within the cranium, they are of special diagnostic significance. The focal symptoms, however, can not be ignored, for, if we watch them carefully, they may show a steady

spread, or growth in intensity, which may also indicate, in itself, that a single lesion is steadily growing within the brain. Such a growth of symptoms may be observed at times, before even a headache occurs. Furthermore, it is the focal symptoms, the paralyses and losses of sensation, which can tell us clinically exactly where a tumor is situated.

A tumor may announce itself for the first time with either the focal or general symptoms. The general symptoms may mislead us into thinking of another part of the body, the gastro-intestinal tract or the kidneys, for example. The focal symptoms may make us think of some other nervous disease, if they are not accompanied by general signs. The ideal diagnostic situation comes about when they come together, but we cannot always have this good fortune in making an early diagnosis.

GENERAL SYMPTOMS

The following are the cardinal symptoms and signs due to sheer pressure within the skull: 1. Headache. 2. Vomiting. 3. Choked disk. 4. Convulsions. 5. Dizziness. 6. Mental dullness. Disturbances of pulse and respiration. We shall consider these in some detail.

Headache: This is an extremely common symptom in brain tumor, perhaps the most common, and certainly the best known. Unfortunately, it is also one of the most common everyday symptoms of normal people, and of people afflicted with an infinite variety of diseases; sinusitis, nephritis, constipation, among scores of others. What sort of headache should make us think of a brain tumor? The typical brain tumor headache is persistent, and it resists ordinary medications. It usually grows in severity and in constancy as time goes on. Sometimes it grows suddenly worse or is relieved by a change in the position of the head. Straining or coughing or sneezing increase its severity. An excessive intake of fluid may relieve it. The position of the headache is rarely indicative of the location of the tumor. When a tumor is near the surface, however, the headache may be directly over it, and there may be local percussion tenderness. When a tumor is in the most posterior portion of the cranial cavity, there may be occipital headache, even stiffness of the neck.

Vomiting: This is another everyday symptom, which, of course, makes us think first of a stomach disorder. When the vomiting is of cerebral origin, it is liable to be sudden, projectile, unrelated to meals. Sometimes there is a total absence of nausea. With it, other signs of pressure frequently occur, such as headache or dizziness, and these symptoms may mount in severity as vomiting occurs. The vomiting may also respond to changes which influence intracranial pressure, just as the headache does.

Papilledema or Choked Disk: This sign is the most valuable of all. It consists of a swelling of the optic nerve head, that can be seen directly on examination with the ophthalmoscope. The nerve head becomes blurred, its outlines indistinct, or lost. The veins are swollen and tortuous, and there may be hemorrhages in the retina. The degree of swelling may be measured by bringing the disk into focus with graded lenses. Visual disturbances may be absent for a surprising length of time in choked disk. It is therefore imperative that the physician look for it and see it himself when he suspects its presence. Furthermore, he must examine both eyes, for it may be present in only one. Occasionally sudden loss of vision occurs in its development. Eventually vision always becomes impaired and finally irrevocably lost when secondary atrophy occurs. A very high percentage, although not all, of brain tumors have choked disks. Many diseases have been observed in which choked disk may occur, among them malignant hypertension and encephalitis. But ninety per cent of choked disks are due to brain tumors, and its presence alone is sufficient for a presumptive diagnosis. Of course, we must differentiate it carefully from other eyeground changes, such as the neuroretinitis of kidney disease, and we must give due recognition to other possible causes such as a terrific hypertension, or obvious acute inflammatory disease of the brain, especially in an epidemic. I am not informed regarding the incidence of true choked disks in the present St. Louis epidemic. However, choked disk is usually a rare finding in encephalitis. We should remember that even a hysteric may vomit, but swelling of the optic disk points to severe organic brain disease, most probably brain tumor.

Convulsions: Generalized convulsions are

frequent in brain tumor, when the pressure becomes intense. Occasionally, in temporal or frontal lobe tumors, they are the earliest symptoms. The importance of brain tumor as a cause of so-called epilepsy must be remembered, and all epileptics scrutinized carefully with this possibility in mind.

Mental Changes: Regardless of the position of a brain tumor, the majority (perhaps) show a certain degree of mental dullness, due to pressure. This may progress to sheer stupor, or even coma, as the pressure increases.

Dizziness: This, again, is a common symptom in many diseases. In brain tumor, it may closely parallel the headache and vomiting. This may or may not be true vertiga, with actual falling.

Disturbances of pulse and respiration: As intracranial pressure increases, and the medulla is compromised, there is a tendency to slowing or irregularity of the pulse and respiration. In the terminal phase, both of these mechanisms may escape and become extremely rapid. None of these changes, however, are liable to be present in the early stages of brain tumor.

FOCAL SYMPTOMS

To serve as an outline, we have grouped some of the important focal signs and symptoms on a chart. (Chart I.) We intend merely to indicate their tremendous range, and we shall make no attempt to discuss them in detail. Any single cerebral neurologic sign may be the sign of a brain tumor, for a tumor may occur anywhere in the brain. A careful history, an exhaustive neurologic examination, and an exact knowledge of neuroanatomy are, of course, necessary for good cerebral localization.

CHART 1.
FOCAL SIGNS AND SYMPTOMS OF BRAIN TUMOR

I Motor Disturbances.
- A. Reflex disturbances. B. Pareses and Paralyses. C. Incoordination and other cerebellar phenomena. D. Distubances of posture and tonus. Abnormal movements. (Extrapyramidal.)

II. Motor discharges or Jacksonian fits. (Localized clonic convulsions.)

III. Disturbances of Sensation.
- A. Superficial or deep. B. On face, mucous membranes, or body.

IV. Disturbances of special senses.
- A. Vision. (Choked disk. Optic atrophy. Field defects.) B. Hearing. C. Smell.

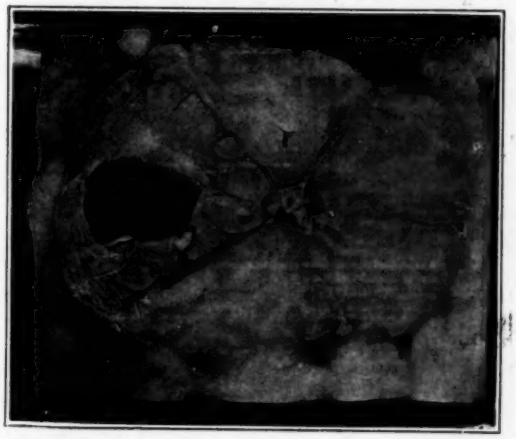
V. Mental and Emotional Disturbances. (Including aphasia, apraxia, acalculia and other related phenomena.)

VI. Remote Physiologic Disturbances.
- A. Disturbances of growth and nutrition. (Acromegaly. Frohlich's Syndrome, etc.)
- B. Metabolic distu.bances (Glycosuria, fever, etc.).

CASES

We may now proceed to a few illustrative cases from the collection of the Menninger Clinic, from which we can gain more than from further tabulation. These are post-mortem specimens, and from that very fact they represent mistakes (in a way), but that only makes them all the more instructive.

Case 1. The patient was a housewife of twenty-three who gave a history of only a few months of vomiting, severe attacks of headache, and a staggering gait. For four weeks, she had kept nothing on her stomach and had had a constant headache. She was treated with various liver and stomach medicines, even osteopathy. Finally her illness was considered psychological and was attributed to troubles at home—marital difficulties with a callous husband. She grew worse rapidly. Very shortly after the discovery of choked disks and ataxia of the legs was made, she had a sudden death. At autopsy a large midline cerebellar cyst was found, filled with hemorrhagic contents. (Fig. 1.)



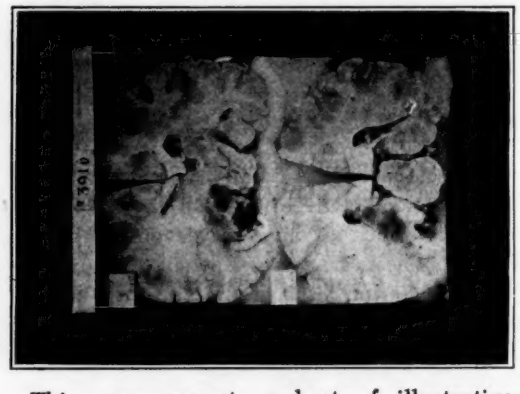
This case illustrates the type of onset in which violent signs of general pressure predominate. Such an onset may even be abrupt. This is liable to be the case when the tumor is in the posterior fossa of the skull, as in this young woman. The same type of onset may occur when the tumor is actually inside the ventricles of the brain. The reason for the abruptness of onset and the high pressure is the fact that the circulation of cerebrospinal fluid can be blocked very sharply by either type of tumor. In this case, there was also a

focal neurologic symptom, the staggering gait. This, combined with the symptoms of increasing intracranial pressure, could have indicated not only the presence of a tumor, but also some hint of its location, even before exact examination was made.

Case II. The next case is that of a college professor of fifty-two. About a year before his death, he began to suffer sudden spells, in which he would be seized by a dread of death and "goose pimples" would break out all over his body. Occasionally, preceding these fits, he would have hallucinations of taste or smell. A sudden strong odor would come into his nostrils or a foul taste into his mouth for no reason. Occasionally he would pass into a dreamy state, and his wife and child would seem unfamiliar, while strangers would be mistaken for old acquaintances. He had only a very slight headache, not always present. This man was a severe hypochondriac; he felt his pulse and worried about himself all the time. The neurological examination was essentially negative. He was, therefore, considered a neurotic. For a time he seemed to improve, but then suffered a mild acute respiratory infection lasting only a day or two.

Immediately following this he developed, among other signs: 1. A choked disk. 2. A very slight weakness of the left side of his body with dulling of sensation on that side. 3. Visual hallucinations, —faces of people mocking him as they moved by. 4. A peculiar speech disturbance in which he was unable to name simple objects correctly, although he was quite glib in his attempts. 5. A defect of the visual field, in which he could not see in the upper left quarter of the field of each eye. This could be tested by the examiner's finger or by having him try to pick out objects in different positions with reference to his line of vision. 6. Lastly, a peculiar mental state, in which he joked and punned all the time about sad subjects, such as death and disease. This man showed certain paradoxical features which we need not discuss.

At operation, a large right temporal lobe tumor was verified and removal attempted, but the tumor was too extensive, and the patient died, post-operatively. At autopsy, a large tumor was found, a malignant type of glioma, invading the right temporal lobe from the medial aspect. (Figure 2.)



This case presents a host of illustrative points. First of all, it represents a type of onset, in which the signs of intracranial pressure came late in the course, at a time when the tumor was too large for successful removal. The onset in this case was with a classical if somewhat rare focal symptom, referable to the temporal lobe, that is, the combination of dreamy states, motor or sensory fits, and hallucinations of taste and smell. One can see how readily such a symptom could mislead one into thinking of a neurosis or even a psychosis. This particular patient had a highly neurotic background covering many years. In such a case, an early exact examination of the visual fields with a perimeter, might have saved considerable trouble, for many tumors give characteristic defects of the fields. The temporal lobe tumor, for instance, shows the quarter defect, which was present in this case. This man also had visual hallucinations, which are not uncommon occurrences in temporal and occipital lobe tumors. They are distinguished by their usual occurrence on one side, the side opposite to the tumor. The speech defect which this man showed was a sensory aphasia. This occurs in temporal lobe lesions and is characterized by an inability of varying degree to understand words, or to use them correctly. In motor aphasia, which is characteristic of frontal lobe lesions, the patient has difficulty in uttering words, even though his comprehension is intact. In either case, the lesion should be on the left side in a right handed man.

The tendency to silly joking which this man showed is really a more common symptom in frontal lobe tumor. It is frequently called by the German name, Witzelsucht. In frontal lobe tumors, a gross mental deterioration and change of personality may be the striking symptoms. Personal dignity may be lost very rapidly, and early incontinence is common. The patient frequently is entirely unconcerned about his symptoms or about the significance of his illness in general.

Frontal and temporal lobe tumors represent the types of tumors in which the early focal symptoms may be highly misleading. Temporal lobe tumors may go on for years with convulsions or other types of fits as the sole symptoms—simulating epilepsy or hysterical seizures. Frontal lobe tumors may present only mental symptoms for a long time. These may simulate general paresis and other organic psychoses, even psychoses of the non-organic type.

Case III. The next case is that of a forty-four-year-old female who had had a radical breast amputation for carcinoma two years before her death. Her final illness had an onset with sudden unconsciousness preceded by a headache and a single exclamation. Following this, she made a pseudo-recovery for ten days, then passed into a stupor and went rapidly downhill to death. During the period of stupor, she was incontinent. Her right arm jerked occasionally. Her left optic disk was suggestive of early choking, but it was not definite. At autopsy there was found a large left temporo-parietal nodule, a metastatic carcinoma. (Fig. 3.)

In addition to the difficulty of making the diagnosis of brain tumor, we must sometimes satisfy ourselves that the tumor is primary before subjecting the patient to a craniotomy. Whenever a patient has a known malignant tumor or has had one within the past few years, the possibility of metastasis arises. Even where there is no history of this kind, the tumor may rarely be a metastasis. A patient in middle or senile life who shows emaciation, with the signs of brain tumor, should always be suspected, and a careful search made for cancerous glands. An x-ray of the chest is also a useful measure to determine the presence of another metastatic tumor or a primary focus. We should mention here that carcinoma of the bronchus has a special tendency to metastasize to the brain. Indeed, the symptoms of brain tumor have often been observed to appear before the patient feels anything wrong in his chest. The symptoms of a metastatic brain tumor may be gradual in development. However, the type of acute onset present in this case is fairly common. There may also be, as was seen here, a latent period of apparent improvement. This is what frequently happens in brain abscess, between the acute onset and the development of the mature abscess, which gives signs simulating those of brain tumor.

This case also illustrates an apoplectiform type of onset in brain tumor, one of the relatively rare and deceptive modes of onset. The jerking of the opposite extremity was of Jacksonian type, although such seizures are more common in tumors that directly irritate the motor cortex. The presence of only a questionable choked disk indicates that we cannot place complete dependence on any single sign of brain tumor.

SPECIAL METHODS

We may now mention some aids to diagnosis, which may prove necessary in certain cases. Occasionally we may be forced to do a lumbar puncture, for instance, where there is no choked disk, and we are forced to differentiate a frontal lobe tumor from general paresis. When a tumor is placed far forward in the brain and there is no intracranial pressure, a lumbar puncture may not be particularly dangerous. When a tumor is in the posterior portion of the skull, when there are definite signs of pressure, the procedure is highly dangerous, and may be rapidly fatal because of the decompression, with sinking of the medulla into the foramen magnum. The x-ray of the skull is often of value in demonstrating changes due to general pressure or focal bony changes. Changes in the sella turcica are very important in pituitary tumors. The use of the perimeter or screen for determination of the visual fields is extremely valuable and not difficult technically. In cases of temporal lobe or pituitary tumor, the visual fields may be the chief means of making an exact diagnosis.

Sometimes it is impossible to differentiate between tumor and some other form of intracranial pathology by ordinary methods. In other cases, we may be unable to determine the precise location of a tumor for operation. For either of these reasons, we must turn to the special methods of lumbar encephalography or ventriculography. Both of these methods depend on the removal of spinal fluid and replacement by air so that we may visualize the ventricles of the brain by x-ray. Lumbar puncture is used in encephalography, and direct trephine of the skull and puncture of the ventricles in ventriculography. When the intracranial pressure is high, the latter method, the direct method, is less hazardous and should be given the preference.

CONCLUSION

Usually the diagnosis of a brain tumor depends on the observation of a progressive focal cerebral disease, which also manifests definite evidence of intracranial pressure. Of these evidences, the presence of choked disk is most conclusive. However, we can often suspect a tumor, sometimes make a positive diagnosis, before these general signs appear, if we remember that a focal neurologic sign that grows steadily in extent and severity is highly suggestive of an expanding lesion. Such a sign will usually progress in a fairly reasonable anatomic fashion. It will not skip from part of the body to part of the body, representing widely separated parts of the brain. A slight weakness of one side of the face may spread to the arm on the same side. Attacks of jerking of one arm may give way to weakness of that arm. An occasional transitory trouble with speech may grow to a hopelessly confused jargon. We must observe such developments closely, whether they occur in the history or under direct observation. It is not common that the fullblown signs of pressure which we have described are present at one time. Sometimes they are absent entirely until a tumor is huge and inoperable. Often a primary optic atrophy will be present instead of a choked disk, in frontal or pituitary tumor. Occasionally a well managed brain tumor will go to operation without any change in the eye grounds. When we are in a quandary about diagnosis or localization, we must turn to the special technical methods of diagnosis. However, these methods can only assist and never replace searching general physical and neurological examination, and minute scrutiny of the history of the symptoms, in the precise order of their development.

We must remember that brain tumors are not rare among fatal diseases. An eminent general pathologist has attributed one per cent of deaths to these lesions. By a constant alertness to the frequency of brain tumors, the great variety and occasional subtlety of their symptomatology, we can more often make diagnoses at a time when the surgeon still has a chance to cope with them successfully.

CHILDHOOD TUBERCULOSIS: DISCUSSED WITH SPECIAL REFERENCE TO PREVENTIVE MEASURES

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(Read before the Nineteenth Annual Session of the Medical and Surgical Association of the Southwest, held at El Paso, Texas, Dec. 7 to 9, 1935).

When we consider that 80,562 new cases of tuberculosis were admitted in 1931 to 509 special tuberculosis hospitals[1] in the United States, we can get some idea of the problem that still confronts us.

Childhood tuberculosis is the term applied to tuberculous disease resulting from the first infection in the lung with tubercle bacilli, regardless of the age of the patient.

Tuberculosis in infancy is usually a very acute disease and runs a rapid course. The organisms usually enter the blood stream and are carried to the meninges, where they find lodging, and we have miliary tuberculosis and tuberculous meningitis as the closing picture. It is not uncommon to see a baby die from tuberculous meningitis while it is still fat and healthy in appearance.

The method of infection is most often by inhalation, with the primary lesion in the lung. Still[2] reports 216 autopsies in children under twelve years of age, at the Hospital for Sick Children, Great Ormond Street, in which he decided that the primary lesion was located in the lung in 138 cases, or 63.8 per cent; in the intestine in sixty-three cases, or 29.1 per cent; and in the ear in fifteen cases, or 8.1 per cent. In autopsies on infants under one year of age, he found thirty-nine in which the primary lesion was in the respiratory tract; five in the gastro-intestinal tract; and seven in the ear. He also quotes 120 autopsies at Chelsea Hospital in which the respiratory route was the seat of primary infection in 65.8 per cent; and the intestinal tract in 16.7 per cent.

Von Pirquet[3] estimates that 95 per cent of all tuberculous infection enters by inhalation. Von Behring[4], Calmette[5], and Osler[6] give the intestinal tract first place. Hamburger[7], Koch[8], and Kinkelstein[9] say infection is usually

through the lungs. But I am more in sympathy with the attitude of Morse[10], who says he doesn't care whether the child swallows it or inhales it, that after he has it, he has it, and the question is, "what are you going to do about it?" And our question is, "what are we going to do to keep someone else from getting it?"

Preventative measures may be divided into two great divisions: first, raising the immunity of the individual child; and, second, preventing the spread of the organisms. Volumes could be written on either of these subjects.

Immunity and allergy are closely related, but we have no means of measuring immunity as we have with allergy. However, chronic tuberculosis never develops in the absence of previous infection. Therefore, such infection must confer some immunity. Much has been written about acquiring immunity. Calmette and many others believe that B.C.G. (Bacillus Calmette-Guerin) is of great value in the prevention of tuberculous infection. In infants this method has not been universally adopted. It is being tried out now in many parts of the world, but has not yet been sufficiently proved to be taken up by men in private practice.

While we cannot measure immunity, we do know that a child whose food, vitamin and mineral requirements are properly met is in better shape to withstand infection, and has more of that something we describe as resistance, than one who has not had the advantage of such a regime. Vitamins are now in the height of fashion, and while, as George Vincent once said of the endocrines, we teach more about them than we know, we do know considerable about the vitamins.

A recent article by Kugelmas[11] on nutrition for superior growth, gives much information on this question. We know that vitamin D, for instance, increases blood and serum calcium. This was shown conclusively by Kaminsky and Davidson[12, 13], also by Crimm[14] and many others. Since all tuberculous individuals show reduced blood and serum calcium, it behooves us to keep calcium high. Wanshenk[15] found that there were no cases of tuberculosis in factories where calcium is prepared, and he also found that tuberculous individuals who went to work in those factories got well. Lime, then, must be good as both a preventive and a curative measure.

Vitamin A has to do with growth, tissue development, lactation, reproduction, and is an important factor in the maintenance of the integrity of epithelial tissues. Lack of this important vitamin shows up by failure of proper growth, weakened and diseased mucosa. As it is most noticeable in the eye, we think of xerophthalmia, but the mucosa of any organ of the body may develop infection from vitamin A deficiency. With healthy mucosa we may ingest all kinds of organisms without injury, but through breaks in the mucosa the organisms find a foothold, a port of entry. I have known children who were fed codliver oil and properly supervised from birth, to go through infancy without a single sick spell.

There is no question in my mind but that, if a child's diet and care is properly supervised—if protein, fat, carbohydrates, water, mineral and vitamin needs are all properly met; if sun baths are given in correct amount, if the clothing is neither too much nor too scant, and a proper amount of rest and hygienic conditions are secured—the likelihood of acquiring tuberculosis, or any other infection for that matter, will be greatly reduced.

A great responsibility and also a great opportunity rest on the shoulders of us who care for children. We can do much to aid in the warfare against this unseen enemy. In recent years the agitation over milk has borne much fruit. Our dairy herds are tuberculin tested, and a large percentage of milk now sold is pasteurized. No one now advises giving raw milk to infants. The question of acquiring tuberculosis from tuberculous milk is almost solved.

Tuberculosis being largely a family disease, given a case of adult-type tuberculosis in a household, with no precautions taken, the infection will spread to from 60 to 100 per cent of those in the household; and in due time other cases of clinical tuberculosis will develop in the family. Prevention consists in searching out these undetected cases of adult-type tuberculosis and teaching them how to prevent the spread of tubercle bacilli to others. It is more important that these patients who will not cooperate be isolated than it is that we isolate the diphtheritic; for we have a specific means of conferring active immunity to diphtheria, while for tuberculosis we have not.

The immediate prognosis is usually good, but children with childhood-type tuberculo-

sis contribute in a large way to those later developing the adult or fatal type of this disease.

Boys and girls in the teens who have not previously been infected with tubercle bacilli, are just as susceptible to infection and disease as the infant under the same conditions, and if the exposure is allowed to continue they often develop, in addition to the childhood-type, the adult and fatal type of the disease.

When we find an infant infected, it is our duty to investigate among the close associates for the source of infection. On the other hand, when we find an open case of tuberculosis we should watch carefully every infant and young child who has been in close contact with the patient.

The tuberculosis of a community is reflected in its children. The incidence of infection among the school-children of a community is the best method of approaching the problem of tuberculosis. Among the positive reactors will be found children with tuberculous disease and among their adult associates will be found open cases of tuberculosis previously unrecognized.

The incidence of tuberculous infection in infancy depends on the opportunities for exposure. It varies from 1 or 2 per cent, among infants with no known exposure, to 100 per cent among infants with definite and prolonged exposure.

By its very efficiency, the anti-tuberculosis movement has developed a somewhat paradoxical situation. The special tuberculosis sanatorium, the tuberculosis expert and all the various organized efforts to fight tuberculosis, have created a situation in which a case is found and sent to the special institution without any contact with the family physician, until he feels that tuberculosis is no longer one of his problems. He hears of some member of one of his regular families being diagnosed and sent to a special sanatorium without his ever having so much as seen the case, until he washes his hands of the whole matter and feels that tuberculosis is no longer his responsibility. It is true we need the specialist, we need special institutions, but they take care of only the acute stage of a very chronic disease. In the incipiency of the disease and after the patients are able to return to their homes, they must and should depend for help and guidance on the family doctor; and the organizations interested in this fight should, instead of going around the family physician, make of him their strongest ally.

Were it possible to locate every open case of tuberculosis in this country; were it possible to get every one of these patients to take the proper precautions to protect those whom they contact—those who are nearest and dearest to them,—the great white plague could soon be conquered. In these days of unemployment, when our government is spending billions to make employment, planting forests in Nebraska, making parks; to what better thought could our government turn than to the health and well-being of our people?

Why not have a health survey of our 120,000,000 people, making a complete physical check-up of every citizen? Why not follow up this health survey with the advice that could be given from the information that this survey produced and made available to both the individual and the family doctor? This could be done with a small fraction of what Europe owes us, and with a program of this magnitude carried out and followed to its logical and ultimate conclusion, we could develop, in this fair land of ours, a race of people the like of which the world has never yet seen.

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CHILDHOOD TUBERCULOSIS: ETIOLOGY AND DIAGNOSIS

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(Read before the Nineteenth Annual Session of The Medical and Surgical Association of the Southwest, held at El Paso, Texas, Dec. 7 to 9, 1933).

Our present-day concepts of the problem of tuberculosis in children have arisen as the result of an enthusiastic effort to study the disease and to observe its progress in what has, up to a little over a decade ago, been a neglected age period. As statistical studies made it evident that the period of adolescence was charged with a high mortality rate from the adult form of pthisis, it became more apparent that something goes on in the period of infancy and childhood which has a bearing on the high incidence of clinical tuberculosis during the teens. The methods of clinical investigation suitable for demonstrating the disease in the adult were of very little help in bringing to light the picture of what was taking place during the pre-adolescent age period in those children who later developed the chronic ulcerative type of tuberculosis with cavity formation. With the hope that, by the control of the disease during the period of infancy and childhood, we should be reaching the fountain-head of tuberculosis, careful studies were begun some 10 to 15 years ago which, because they have permitted the close study of thousands of cases from infancy and early childhood over a period of ten or more years, have made it possible to study the disease in its inception, through its various stages, and into the teen-age period and to see just what is taking place. The results of such studies have caused us to abandon orthodox views of many years' standing, and each year is adding more to our conception of prognosis, the significance of findings, and the rationale of therapeutic procedures. It is important to keep abreast of these changing viewpoints as they affect our concept of all phases of tuberculosis. It is my purpose merely to attempt to present the concept of tuberculosis in children which is recognized by the majority of workers in this field in such a way that it may afford a practical working basis for the understanding and care of the child with a tuberculous infection. An attempt will be made to demonstrate what we mean when we speak of "childhood tuberculosis," and in what ways it differs from so-called "adult tuberculosis." It is realized that there are many questions which are still unanswered and which further serial studies over longer periods will render more clear.

The report of the Committee on Childhood Tuberculosis of the American Sanatorium Association in 1929, consisted of the following: "Resolved, that the term 'childhood tuberculosis' be used to describe the diffuse or nodular lesions in the lungs and associated tracheobronchial nodes that result from a first infection of the pulmonary tissue with the tubercle bacillus." This is in contrast to the "adult type" which results from reinfection later on, which in the light of the most recent studies is probably usually exogenous, occasionally endogenous, and implanted on tissues made allergic or hypersensitive by the first or childhood-type infection. The following table illustrates the essential differences between the childhood type of tuberculosis and the adult type:

TYPES OF TUBERCULOSIS

Childhood Type

1. Common in children, rare in adults.
2. Results from first infection.
3. Associated tracheobronchial lymph nodes always involved, not always demonstrable.
4. Lesion involves any part of lung, no preferred sites.
5. Caseous lesions usually followed by calcification and slight fibrosis.
6. Infiltrated areas commonly resolve leaving little or no scar except for foci of caseation, which usually become calcified.
7. In general, a greater tendency to rapid spread of lesions and to development of miliary tuberculosis.

8. Cavities not apical, not close to pleura, form quickly and are more easily healed.

9. Prognosis is good.

Adult Type

1. Common in adults, rare in children.

2. Results from reinfection.

3. Tracheobronchial lymph nodes not involved.

4. Apical (or subapical) localization, often in lung opposite to that containing calcified primary focus and calcified tracheobronchial glands.

5. Caseous lesions usually followed by excavation and much fibrosis.

6. Infiltrated areas heal with much fibrosis.

7. In general, a greater tendency to encapsulation and to healing of lesions.

8. Cavities apical, close to and adherent to pleura, relatively rigid and do not heal easily.

9. When this type affects a child, the prognosis is bad.

(Waring, after Chadwick).

It has been pointed out by Krause that the first tissue response to invasion by the tubercle bacillus is a proliferative one, with formation of anatomical tubercle. This first pathological lesion may occur at any point in the lung, although it is more often seen in lower lobes. This primary, focal nodular lesion in the lung parenchyma usually becomes caseous, later much diminished in size, and over a varying period of time it becomes, finally, calcified and fibrotic. It is frequently not recognized until calficied, and then only by the x-ray. A roentgenogram taken shortly after the establishment of this lesion may show diffuse infiltration around this focus, or even consolidation, usually without striking physical signs. This stage in the process is often overlooked unless an x-ray just happens to be taken at that time. Almost co-incidentally, or very shortly after the appearance of this primary lesion, the regional tracheobronchial lymph glands become involved, with the setting up of caseous foci which, in most cases, follow a similar course to terminate in calcification and fibrosis. This pathological process, therefore, is going on in the tracheobronchial glands at exactly the same time and in exactly the same way as in the case of the lung focus, and the calcified tracheobronchial gland is the most commonly demonstrated lesion of childhood tuberculosis. These changes are usually retrogressive and benign, without cavity formation and with negative sputum. This benign course may, at any time, be interrupted by the escape of bacilli beyond the confines of the local lesion in the lung or glands, either by way of the blood stream or from rupture of a caseous focus into a bronchus, with dissemination of the infection throughout the lungs and the other organs of the body, producing the fatal miliary form of tuberculosis. When this occurs, it is usually associated with tuberculous meningitis and is the common terminal lesion of this age period. But evidence at present indicates that this is more often an accidental occurrence rather than one dependent upon the tissue defenses of the body.

The pathogenesis of the childhood-type lesions as I have described them, has been pretty well understood for over a decade, and we are indebted particularly to the investigative work of Opie, McPhedran, Krause, and Chadwick for the demonstration and description of what takes place in the lung at this time, particularly from the anatomical standpoint. In the past few years there has developed an especial interest in the role of allergy in this connection, and an attempt is being made to correlate certain previously unexplained phenomena with the factor of allergic sensitization of lung tissue following the primary infection. Krause said, several years ago, "As soon as any and every initial infection is established, we are obliged to reckon with two new bodily (tissue) attributes that conceivably affect pathogenesis. As soon as the first tubercle is formed, all the tissues acquire a new capacity to react to tubercle bacilli in an acute inflammatory manner. This property, denominated as allergy, embodies a condition of tissue hypersensitiveness to the protein constituents of the tubercle specifically over-resistant, that is, immune, to fresh implantations of tubercle bacilli, or to any further extension of those bacilli that may be already focalized."

There will be no attempt made on my part to theorize on the relationship of immunity and allergy in tuberculosis. Such evidence as we have is in many respects contradictory, and there is still wide lack of agreement among those who have made the subject a matter of especial study. But I should like to point out a very practical aspect of the question which concerns prognosis in this disease. Disregard-

ing for the moment the cases in which acute disseminated tuberculosis follows shortly after the initial infection (and these cases are relatively few in comparison to those in which it does not), the question may be put in this manner: Does the primary infection constitute an asset or a liability as far as its relation to the adult form in later life is concerned? There is abundance of proof that the allergic state set up in the tissues by this first infection is a distinct liability when these tissues are faced with reinfection at a later date. However, there is also good evidence that a relative degree of immunity also results from this first infection, and that in case of reinfection at a later date the lesions, rather than being of an acute, rapidly progressing type, are in most cases of a localized, chronic type, such as is characteristic of the adult form.

One attempt to answer this question has been made by Stewart and Myers of Minneapolis, who have had abundant material to make this study at the Lymanhurst School for Tuberculous Children. They have made observations in thousands of children, including serial x-ray pictures of the chest made at frequent intervals, and covering, in many cases, over ten years in the life of the child. These studies have afforded an opportunity to follow the sequence of events in a stated case from the proliferative and exudative stage of the early primary infection, through the stages of partial resolution, to the end results of calcification and fibrosis in the involved areas. Many cases they have followed in this manner to the onset of the adult form in the apical and sub-apical regions with extensive involvement. If time permits, at the close of this paper, I should like to show you some slides taken from their series, and very kindly lent to me by Dr. Myers. As a result of their observations they conclude that a primary tuberculous infection (which produces allergy to tuberculin) does not confer significant protection, but alters the tissue resistance in such a way that, when a reinfection is experienced, instead of being able to repeat the benign primary form, the body is doomed to develop the adult form of consumption. Apparently the human body can experience the benign primary form of the disease but once only. It has been shown elsewhere that nurses who began training without any previous contact with tuberculous patients, and who showed, as a result of the tuberculin test and x-ray, no evidence of ever having experienced a primary infection, when they were exposed to tuberculous patients on the ward, would always develop the first-infection type of the disease, regardless of their ages. However, in those who began training with evidence of having had their first infection sometime during childhood, when tuberculosis did supervene in a small percentage of these, after variable periods of contact, it was always of the adult type.

This is also important because the use of the BCG vaccine of Calmette, which has been popular in certain clinics on the Continent for several years, and which is being studied in this country by as competent an observer as William H. Park of New York at the present time, rests on a belief exactly the reverse. As you know, BCG vaccine is an attenuated culture of live tubercle bacilli, which, under properly controlled conditions, should not increase in virulence after being introduced into the body. Entirely disregarding for the moment the question of danger from virulence, it is an established fact that it is a means of artificially producing the first infection, with the production of allergy to tuberculin. In spite of the fact that its users advocate its use only in selected groups and under certain specified conditions, it is nevertheless true that there is one school, if we may call it that, represented by those who stress the undesirability and danger of the allergy set up by the primary infection and tend to minimize the importance of the protective immunity produced. Then, there is another school which feels that a carefully controlled first infection is an asset, and that the protection so conferred outweighs in importance the dangers of an allergy to tuberculin so established.

The diagnosis of the childhood type of tuberculosis rests upon (1) the history, (2) the tuberculin test, (3) the x-ray.

In seeking a history of contact with an open case of tuberculosis, it is important to question and evaluate any suspicious symptom, such as cough and generally poor health, not only in all members of the household, including present and past servants and other help, but other frequent associates of the child. This is frequently the most difficult and puzzling portion of the study of the case. The symptom-

atic history of the child itself is usually of very little help. The child with a first infection is often entirely free of symptoms of ill health. When complaints such as underweight, cough, frequent colds, and so forth, are present, they are often found to be due to some other disorder occurring co-incidentally with the primary tuberculous infection and bearing no specific relation to it.

As regards physical examination, we no longer feel that we can place much weight on procedures and signs that were previously thought of value. Even during the exudative stage, the physical signs in the lung are inconstant and inconclusive. At later stages they are entirely absent. Our increased knowledge of the anatomy of the child's chest and correlation with postmortem findings has made us lose faith in such signs as interscapular dulness, d'Espine's sign, and Eustace Smith's sign.

The tuberculin test is a test of the degree of allergy or hypersensitiveness to tuberculin. When positive, it indicates the presence of a focus of tuberculosis somewhere in the body. It does not often give definite information about the immunity of the child, as the curve of allergy does not necessarily conform to the curve of immunity. The Mantoux method of injecting a dilution of old tuberculin intracutaneously is the accepted method at the present time, and deserves to supplant the von Pirquet scratch method, because of its increased sensitiveness and its rough quantitative measurement of the degree of allergy. An initial dose of 1/10 of a milligram intracutaneously is usually used. If the reaction, which consists of a definite area of redness and edema at the site of inoculation, is negative at the end of 48 hours, it should be repeated with a dose of 1 milligram. If a high degree of allergy is suggested by the presence of such conditions as pleural effusion or erythema nodosum, or any other reason, it is safer to start with 1/100 milligram, to avoid the danger of a violent local reaction with sloughing. This is a very rare occurrence and should in no way act as a deterrent to the use of tuberculin diagnostically, which, according to most authorities, in properly regulated dosage is a safe procedure.

The x-ray picture is our most valuable method of locating the site of the primary infection and of observing the stage reached by the infective process. Whereas, the primary foci in the lungs and tracheobronchial lymph nodes are the ones most frequently demonstrated, it must not be forgotten that other organs, such as the tonsils and intestinal tract, may be the portal of entry, and that many times it is possible to demonstrate calcified lymph nodes in roentgenograms of the neck region and the abdomen. Where the tuberculin reaction is positive, x-ray pictures of the chest should be taken in the anteroposterior and lateral positions, and where it is suggested, in the oblique positions, also. Pictures taken in various positions are of more value than stereos in the case of children's chests, as they afford a better view of the hilar region, where evidence of calcification is sought. In the stereo anteroposterior views, this important region is partially covered by the heart shadow. When the primary focus is not disclosed by careful chest pictures, it should be a routine procedure to take flat plates of the cervical and abdominal regions, with a careful search for calcium deposits. In small children, it is often possible to include two of these areas on one plate.

"From the standpoint of the appearance of lesions discovered by x-ray examination, childhood pulmonary tuberculosis of first infection may be divided into the following three types: (a) resolving pneumonic-appearing parenchymal consolidations, which represent early stages of the disease, (b) intrathoracic lymph-node calcifications of various degrees, which represent late permanent stages of the disease, (c) Ghon tubercles associated with hilum-node calcifications, which represent late and permanent stages of the disease. These various types of lesions merely represent various developmental stages in the evolution of the pathology produced by a primary tuberculous infection, between which many transitional stages may be noticed. The end result is always the same, except in fatal cases, in that calcification of hilum nodes appears, or that Ghon tubercles develop, associated with calcification of the homolateral hilum nodes."

In closing, then, it may be said that we have, at the moment, enough definite knowledge about the etiology and pathogenesis of childhood tuberculosis to form a sound basis for diagnostic criteria. The continuation and completion of other studies, now under way, will

tend to clarify many points and fill in gaps that now interfere with a completely rounded-out picture of childhood tuberculosis.

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CHILDHOOD TUBERCULOSIS AS A PUBLIC HEALTH PROBLEM

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(Read, by title, before the Nineteenth Annual session of The Medical and Surgical Association of the Southwest, held at El Paso, Texas, Dec. 7 to 9, 1933).

The health officer sees the problem of childhood tuberculosis somewhat differently from the pediatrician or the practitioner of internal medicine. To the latter come Mr. and Mrs. Jones and Billy Jones. The parents want to know what is the matter with Billy, in particular, it may be, whether he has an infection in his chest or no. They will be grateful for whatever diagnostic procedures the doctor thinks necessary, and they are able and willing to pay, not only for the x-ray pictures, but also for the skill used in reading them.

The health officer sees the Jones family multiplied some thousands of times and changed and diversified in the process. His Jones' ask for nothing; most of them have never heard of childhood tuberculosis, many of them will be willing as a favor to allow him to make a Mantoux test, but none of them will be ready to pay for x-rays. Before he undertakes to make a diagnosis, he must be satisfied that the taxpayers' money which he will spend is not being spent in vain.

There are three possible lines of justification for expenditure of public money in a search for childhood tuberculosis first, we may hope that by finding tuberculosis infection in the primary stage we may be able to prevent the development of the open infectious cases of tuberculosis, and so stamp out the disease by preventing contagion; second, we may justify the cost of discovering childhood tuberculosis as a method of epidemiology leading to the discovery of those open cases from which the child derived infection; and, third, we may regard our survey of childhood tuberculosis simply in the light of research.

The first line of justification is a very tempting one. It seems to be the logical outcome of the campaign for earlier and earlier diagnosis of tuberculosis. But before we can conclude that the discovery of pulmonary tuberculosis in children certainly justifies the cost, we must be able to prove two things: first, that the bulk of adult tuberculosis will arise from amongst those cases of primary tuberculosis that we shall discover and not from other cases of primary tuberculosis that will occur after we have made our investigation; and, second, that having discovered cases of primary infection, we have it in our power to prevent progress of infection to the secondary and tertiary stages.

It must be remembered that the recovery rate of children with tuberculosis, even when they are manifestly sick from tuberculosis, is fairly high. Studying 944 children under 15 years of age housed in the Soederby Hospital between 1910 and 1920, Lundquist[1] found that in 1930 and 1931, 75 per cent of the children had survived and 78 per cent of the survivors were without any sign of active disease. These children, I repeat, were manifestly ill. The child that we find, by the modern methods of diagnosis, to have childhood tuberculosis, does not appear to ordinary doctors, like you or me, to be sick at all. In the Bellevue-Yorkville demonstration, 1,000 children between 12 and 14 years of age were given medical examinations by physicians and graded in general health. The children were subsequently tested by tuberculin test and x-rays. Of the 184 children found to be tuberculous by the x-rays, only twenty-five were among the 168 children in the lowest health grade. In other words, 18 per cent of all children have clinical tuberculosis, and 15 per cent in the lowest grade of health have clinical tuberculosis. Not one of the 184 tuberculous children had been suspected of tuberculosis by the examining physician. The doctors had suspected twenty-four children of having tuberculosis, but the x-ray showed that in no single case were the suspicions justified. There were more tuberculous children among those who were over-weight than among those who were under-weight.[2] This experience is not unique; Burton Wood[3] writes, "In diagnosis we have to depend almost entirely on the x-ray picture of the chest; symptoms are not distinctive." Lord[4], writing out of the experience of the ten-year program in Massachusetts, says, "In the juvenile type

there are usually no symptoms which can be ascribed to the lesions." Lord adds that the disease may be progressive without constitutional disturbance, and this, of course, we must grant. But must we not also believe that in many cases the disease will not be progressive but regressive? If we trust to our prejudices, then those of us who believe that a first infection makes the individual more susceptible to subsequent infection will take the opposite view. To enter here upon a theoretical discussion of the immunology of tuberculosis would be a waste of time. The ultimate proof will be furnished by experience. There are now several communities in which the cases of childhood tuberculosis have been discovered and are being watched. Whether or not these cases will supply the bulk of the adult tuberculosis in the next ten years, will plainly be a matter of observation. Already in Massachusetts, Pope[5] considers that some evidence has been collected: "In a group of children followed from 2 to 6 years, significantly more pulmonary tuberculosis has developed among those with the childhood type of disease than with a suspect group." There is some further evidence which points in the same direction.

Grant for the sake of argument that future cases of open tuberculosis will develop from present cases of childhood tuberculosis, the public health officer still wants to know whether the clinician is able to prevent this development from taking place. Can this be achieved by removal from contact, avoidance of strain, the provision of adequate nourishment and adequate rest? Will it be possible in a given community to secure these advantages for known cases of childhood tuberculosis? Doubtless the possibilities of successful treatment will be increased if we can subdivide the cases of childhood tuberculosis into those which are benign and in which recovery may be expected without any special treatment, on the one hand, and those which tend to be progressive and call for a concentration of medical care. Such subdivisions have already been postulated by Wood[3] and by Opie.[6]

Let me emphasize again that, from the public health point of view, the economy of this program is of the first importance. In Massachusetts, it cost $140 to discover each case of childhood tuberculosis. How much the subsequent reinvestigations with x-rays and special care cost, I do not know; but it is plain that a significant number of adult cases must be prevented if this program is to be justified to the taxpayer.

My second possible justification of this program is for the discovery of open cases. On this I have only two comments to make at the present time. The first is that for this purpose the survey must be made of the entire community. It has been suggested by several writers that, as a measure of economy, childhood tuberculosis surveys be limited to children who are known to be in familial contact with open cases. Such a limitation would of course defeat the purpose which we are now discussing. My second comment is that a survey for epidemiological purposes is more likely to be justified in rural communities than in a large city. Going back to the Bellevue-Yorkville Survey, we find that only eight out of the 184 cases of childhood tuberculosis, that is, only eight out of 1000 children examined, came from families where there was open tuberculosis in the home.

Personally, I believe that for most of us a sound justification for a survey of childhood tuberculosis can be made only on the frank admission that we are undertaking research. We do not know, for our own community at least, how much childhood tuberculosis exists, how much of future adult tuberculosis will be derived from this group, how much we can do to prevent the progress of childhood tuberculosis into the adult form, how many cases of tuberculosis may be discovered by follow-up of the known cases of childhood tuberculosis, how much these procedures will cost us, or how much we shall save in the reduced cost of adult tuberculosis as a result of these procedures. But all these things we can find out, and it is entirely possible that our discoveries will lead to great economic saving, as well as to salvage of human life and health. It is in this spirit of hopeful enquiry that we are going forward with a survey in New Mexico next month. The survey is being financed largely through the sale of Christmas seals, and its success will depend very largely upon the generosity with which the people of New Mexico make their purchases.

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HAY-FEVER IN CENTRAL ARIZONA AND ITS TREATMENT WITH ORAL EXTRACTS.

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(Read before the Maricopa County Medical Society at Phoenix, Ariz., Feb. 5, 1934.)

Hay-fever in central Arizona presents a problem to the general practitioner, as well as to the patient. Due to the semi-tropical arid climate, an abundance of pollen is in the air from February until November, and at times may even continue through the winter months. Desensitization by the orthodox method of parenteral injections, in the multiple and hypersensitive cases, is usually a prolonged and expensive procedure. For the past three years a number of patients have been treated orally with pollen extracts with most gratifying results and with minimum expense to them.

The chief pollinators in this and the southern section of the state are cottonwood (populus maudougallii), ash (fraxinus velutina), rabbit bush (franseria deltoides), desert ragweed (franseria dumosa), Bermuda grass (cynodon-caprioola dactylon), careless weed (amaranthus palmeri), and the slender false ragweed (franseria tenuifolia). Cottonwood starts giving off its pollen usually in the first two weeks of February, lasting about three weeks. The pollen is liberated by the male tree at the time of budding. The cotton which is usually associated with these trees is the fertile seed from the female tree and is not released until a month or so following the pollination. Contrary to the general belief, this cotton does not produce hay-fever, and the symptoms prevalent at the time the cotton is seen flying in the air, in this locality, are due to Bermuda grass and the desert weeds (frans. deltoides and dumosa). Ash makes its appearance late in February and may overlap the season of the cottonwood. It, too, is produced by the male tree at the time of budding and leafing, and supplies an abundance of pollen. In March, the desert weeds (rabbit bush and desert ragweed) make their appearance. Their pollen is light and dry and easliy carried considerable distances by the spring winds. During this time some of the dried pollen from the cottonwoods and ash, remaining in the dried blooms and dusts, may also be a factor. This year, due to the mildness, these weeds began to pollinate in February. In dry years they produce less pollen but are serious offenders if there have been spring rains. Bermuda grass makes its appearance fairly early in the spring; because of its prevalence and length of pollinating season it is of major importance. Generally it pollinates well up into November; in the frost-free sections it may give off its pollen all winter. During this past winter, with its extreme mildness of weather and lack of rains, it was in the air almost daily. Its pollen is extremely fine and buoyant.

Dampened pollen sours quickly, but dried pollen keeps its potency for a long time, even when mixed with road dust. It has been my observation that pollen produced late in the pollinating seasons is finer and drier, and apparently contains less fats and oils, than the pollen produced earlier in that pollinating season. For this reason, late pollen seems to be more toxic and may account for the hay-fever cases that develop asthma later in the seasons, and not because there is more pollen in the air. One patient went through almost the entire year last year and did not develop hay-fever until November and it was found to be caused by Bermuda pollen.

Careless weed (amaranthus palmeri) begins pollinating in May and gives off pollen until October or November. It is produced by the male plant and is a fairly heavy pollen. This

weed grows abundantly in and about the citrus groves, where it causes its chief trouble.

The slender false ragweed (franseria tenuifolia) does not pollinate in the valley until the hot weather subsides. It begins in September or October, depending on the temperature. Hot weather retards its growth and pollination. This same weed pollinates in August in northern sections of the state, and by the time it begins to pollinate in the central and southern areas, where it is warmer, it has gone to seed in the cooler northern parts.

There are numerous other weeds and trees which play a more or less minor part here in causing hay-fever, but which, at times, may be of considerable importance. Canyon ragweed (franseria ambrosioides) and hymenoclea salsola begin pollinating slightly later than the rabbit bush but are less abundant. These can be seen growing along the highways east of Mesa. Olive trees are sometimes a factor in May, but the pollen is heavy and not carried far. It also contains an abundance of oil or fat. At present there are a few Chinese elm scattered in and about Phoenix. In the future they, too, may become more or less of a factor. Russian thistle (salsola pestifer), an important factor in the northern part of the State, is slowly increasing in abundance in this section and undoubtedly will be a major factor unless its spread is prevented. Johnson grass (andropogon halepensis) produces but little pollen, so is of minor importance, and is readily controlled with Bermuda desensitization. Chenopodiaceae, album, leptophyllum, and murale can be seen scattered through the valley and also have a paucity of pollen. The same is true of annual salt bush (atriplex wrightii), many seeded salt brush (atriplex polycarpa and shad scale (atriplex canescens). The later two are found south of Chandler on the Tucson highway. Bur and western ragweeds (franseria acanthacarpa and ambrosia psilostachya), which are prevalent in the northern sections of the state, are slowly creeping toward the valley. They can be seen growing along the roadside south of Wittman and Beardsley.

Three years ago, for therapeutic purposes, I started a few Bermuda sensitive patients on concentrated pollen extract by mouth. The results were so surprisingly good that the following year the same type of treatment was also used in patients sensitive to ash, rabbit bush, and slender ragweed. The results were entirely satisfactory. The oral extracts were used in conjunction with parenteral injections in some of the cases and undoubtedly were a considerable factor in reducing the number of injections for the development of tolerance.

Last year the author reported the results of this form of treatment in nine patients suffering from ash, thirteen from the desert weeds (rabbit bush and desert ragweed) and thirteen from Bermuda grass. Of the nine ash patients only one took the treatment preseasonally because of a severe asthma experienced in previous years. She was sensitive only to ash and reported nearly one hundred per cent relief. Of the other eight, six obtained from ninety to ninety-five per cent relief, and one only about sixty per cent. One patient did not notice any benefit. Of the thirteen patients suffering from rabbit bush and desert ragweed, seven took the extract preseasonally and continued with them at intervals during the season. They all reported from ninety to one hundred per cent relief; of the remaining who took it only seasonally all but one obtained relief. Thirteen Bermuda sensitive cases were treated by this method. Five obtained entire freedom. Eight were under treatment by the intradermal method and took the extract as an adjunct. Three of these noticed decided benefit from the oral extract and did not require as many injections to develop tolerance. Two obtained only partial aid from the oral extract and three did not notice any added comfort. However, the following year all of these patients with the exception of one were relieved by the oral method alone.

During the past year thirty-eight Bermuda sensitive cases were treated orally. Thirty of these were practically entirely relieved and the average length of treatment was about three weeks. Of the remaining eight, three received partial relief and one of these discontinued treatment because of a mild urticaria. She was undoubtedly overdosing herself. Of the five who did not receive any benefit, two were severe asthmatics and had failed to obtain results in previous years, and also last year, with either the intradermal or subcutaneous injections. One case was relieved by the subcutaneous method only. Two were placed on intradermal injections but experi-

enced no beneficial results. One patient, my own son, was relieved by the oral method alone until the height of the Bermuda season when he developed a severe cough, which was at first thought to be due to Bermuda pollen. He was taking occasional doses orally at the time. Intradermal treatment was instituted but he failed to give any skin reaction until large doses were given. He had apparently become skin negative from the oral extract. Measles soon explained the source of his cough.

Last fall, four patients were treated for slender false ragweed. They all reported excellent results. However, ragweed was only a small factor last year as the prolonged hot weather and lack of rains caused a considerable shortage of pollen from this weed.

This spring four patients were treated for cottonwood hay-fever orally. Two obtained practically entire relief and one about seventy-five per cent. The fourth developed an intercurrent pertussis which made control difficult.

Last summer, the author gave Dr. J. T. Malone at the U. S. Veterans' Hospital in Prescott extracts from Russian thistle, careless weed, bur and western ragweeds, with which he treated a number of patients in the hospital. He obtained excellent results and reports for this area will be made later. An extract was also made from orris root with which he treated cases of narcolepsy, diabetes insipidus and Meniere's syndrome[2]. He found an associated allergy in these cases he had under his care and they were markedly improved under orris desensitization. The oral extract apparently helped them materially.

It is interesting to note that most of the patients taking the extract orally, even seasonally, were relieved in from one to three days. This was especially true in the Bermuda cases. In fact, many would obtain temporary relief in about one-half hour, and would gauge their dosage and number of doses by their symptoms. One patient who was having a severe hay-fever from Bermuda was relieved for an entire season with four or five oral doses. In the case of a nurse who was the first patient three years ago, last year she required less than one-half an ounce of the concentrated extract to carry her through the entire Bermuda season. Many of the patients were relieved for the entire season after about two to four weeks. A number took small doses off and on during the Bermuda season, waiting each time for symptoms to develop.

Two different extracts were used in the treatment of these cases. One was a concentrated extract of three per cent, in a phosphate glycerol solution; the other a one-tenth of one per cent dilution in a buffered salt solution. In the dilute solution the pollen granules were not filtered off and were taken internally with the extract. The dosage of the three per cent extract varied from three to fifteen drops, and, for the other one-half to one drachm diluted in about one-quarter glass of water. A maintenance dose twice daily with additional doses, if needed, for attacks, usually controlled them. Preseasonally, the dosage could be built up materially. Two or more pollens may be combined in the extracts.

This February and part of March there have been four pollens in the air at one time in and about Phoenix. These are cottonwood, ash, Bermuda and rabbit bush. Due to the lack of precipitation the desert ragweed (frans. dumosa) bloomed this year in March. A number of patients sensitive to all four of the above pollens are being treated at the present time. Preseasonally the dosage may be built up gradually until large doses are taken but the seasonal doses should be much smaller. Last year a physician who took the Bermuda extract seasonally reported that five to seven drops would relieve him quickly, but that fifteen to twenty would aggravate his hay-fever in about one-half hour. This spring he has built up the dose preseasonally to one hundred drops of the concentrated extract.

Utmost care must be taken in preserving the dried pollens and in their preparation, as slightly rancid pollens or extracts may cause gastric upsets. With extracts properly prepared and properly kept, preferably in refrigerator, gastric disturbances are seldom seen. Overdoses, especially during the season, produce increased symptoms shortly after the dose is taken. Reduction of dosage corrects this. A mild urticaria developed in one case and two cases developed the giant form. In these excessive amounts were taken seasonally.

Touart[3], in 1922, used the whole pollen grain orally with fair results. In a personal com-

munication he stated that at first he used too small doses. Later he started with one milligram of the dried pollen and increased the dose to substantial amounts. He stated that the method, on the whole, has been generally satisfactory but not equivalent in its effect to the subcutaneous injection of pollen extracts. He apparently was using it chiefly in the eastern ragweed cases which, judging from reports, are difficult to control. Thommen[4] used the same method in 1923 in one asthmatic case sensitive to eastern ragweeds. Entire relief of the asthma resulted, and about ninety per cent relief from his hay-fever. Black[5] also treated a number of cases in 1928 with pleasing results.

CONCLUSIONS

In the eighty-one cases treated thus far, approximately seventy-five to eighty per cent were markedly relieved. Of the remaining a few were materially helped. Where results are not obtained by oral administration alone it can be used as an adjunct along with parenteral injections. On the whole, this method has proven successful for Arizona pollens. It minimizes the expense and the discomforts from the usual injection methods. I wish to thank Drs. O. H. Brown, Trevor Browne, E. R. Charvoz, and J. J. McLoone who kindly gave me reports on the patients they treated with the oral method.

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X-RAY and LABORATORY TECHNICIAN, recently graduated from high-class teaching institution. Twenty-three years old, single, would accept reasonable salary. Address Box BB, Southwestern Medicine, Phoenix, Arizona.

WANTED — By Nurse-stenographer, position in physician's office or hospital historian. References. Address Box M, Southwestern Medicine.

INTESTINAL AMEBIASIS

FRANK J. MILLOY, M. D.
Phoenix, Arizona.

(Read before the Staff of the Good Samaritan Hospital, Phoenix, Dec. 26, 1933.)

The recent ballyhoo in the public press about amebic dysentery is very much worth while and is serving a purpose. It is helping to educate the public. Heretofore, when a patient was informed that he had amebae or flagellates in his stools, he looked at you and wondered if you were just right, or just what it was all about. In fact, it is very rare that a lay person has ever heard of such a condition. The reason for calling it ballyhoo is that the term amebic dysentery is very misleading, because very few people harboring amebae in their intestinal tract have dysentery at any time. A more proper term for this condition is intestinal amebiasis. And it also should be emphasized that the ameba is only one of several pathogenic parasites that inhabit the intestinal tract of man. There are even several forms of amebae, and many of our best text books and references will state that the Endamoeba histolytica is the only pathogenic form and that all other forms are harmless. Such statements can be made only by authors who do not publish personal observations.

Like all infections, amebae vary in virulence and possibly the virulence varies in the different temperature zones; that is, more virulent in the tropics than in the temperate or frigid zones. Anyway, amebic dysentery in the tropics is a very common occurrence. I mean by that, the severe, prostrating, fulminating form of the disease with severe dysentery and high fever. While in the temperate zone it is really rare to have a patient in whom the amebae, and this applies to the histolytica type, give a history of anything approaching an attack of spells of bloody diarrhea and high fever.

The literature abounds in statistics on the incidence of amebae and some time ago Craig of New Orleans made an attempt to arrive at an average or conservative estimate of the incidence of this infection. These statistics vary from as low as .2 per cent in a series of 522 patients studied by Andrews and Paulson in Baltimore, to as high as 53 per cent, in a series

of 154 students at the University of California. Back in 1911 Sistrunk reported an analysis of 145 patients observed at the Mayo Clinic, with twenty-five infected with amebae, or about 16 per cent, and half of these patients had never been elsewhere than in the Northwestern states. In New Orleans, Faust found 13.7 per cent of infections in 1100 cases. In the Army Medical School at Washington, Craig found twenty-four out of 189 medical students, or 12.7 per cent, infected. No nation-wide survey has ever been made, but in a report of several hundred cases which came to the Mayo Clinic, a chart published about two years ago showing the geographical distribution, showed cases from almost every state in the Union. Several years ago Barrows made a routine study of 1000 consecutive admittances to the Los Angeles General Hospital and found 8 per cent harboring intestinal parasites of one kind or another.

On the basis of these various reports, Craig estimates that it is conservative to say that 5 per cent to 10 per cent of the population harbor amebae, or in other words, on a basis of a population of 120 million, between 6 and 12 million are infected. He adds that if one wished to be extremely conservative he could place the figure at 1 per cent and we would still have 1,200,000 cases of amebae in the United States. Now, in the city of Chicago, with 3,000,000 people, there are 30,000 cases of amebae at the most conservative estimate. So it can only be said that Dr. Bundensen's report of 100 cases is far out of line of the actual figures, if they were only compiled. Of course his 100 cases might represent the number of cases of dysentery in 30,000 people. Or, perhaps, the ameba acts like the influenza infection and takes on added virulence at times, and there is actually a virulent outbreak over the country. But even if only 100 out of 30,000 cases have dysentery, every one of these 30,000 presents the same public health hazard, i.e., every one of these 30,000 is a carrier and disseminator of the disease.

Magath of Mayo Clinic says: "It is difficult to estimate the degree of infestation throughout temperate America. Some men, such as Colonel Craig, believe that the disease is present in from 5 to 10 per cent of the population. The figures of Meleney for certain isolated regions in Kentucky and Tennessee would indicate that the percentage is much greater, but our figures, which include a fairly representative cross section of the country, indicate that the infestation is not greater than 2 to 3 per cent. Whatever the figure is, it would indicate that a large number of people are suffering from, or harboring, this parasite in their intestinal tracts.

"The method of spread of the organism, while not clearly understood, evidently has as its basis the old question of preventing the excreta of one human being from finding their way into the food and drink of another, and apparently civilization has not progressed to the point where this can be prevented. Unfortunately for man, transmission of the disease is by cysts which are relatively resistant. They may exist for as long as six months in water and may pass through the gastro-intestinal tract of the common house fly without injury. Chlorine, which is so generally used for the purification of water supplies, is relatively ineffectual; it takes a hundred times as much chlorine to kill the cyst of the ameba as is used in water supplies. While the ameba in the motile stage is quite readily killed, it is possible to transmit the disease by means of these forms, but the passage must be direct. Both the cysts and the motile forms are readily killed by drying and by a temperature as high as 68° C. for five minutes. Craig emphasizes as a mode of transmission, water supplies, and it is obvious that a contaminated water supply would readily account for many cases. Flies have been repeatedly incriminated, and Craig studied, in 1916, an epidemic of amebic dysentery in El Paso, Texas, in which he demonstrated flies as the transmitting agent. The cyst will not only pass through their intestinal tracts to be left on food, but will adhere to the feet of flies and thus be transmitted to food and water. Kofoid has emphasized the transmission of the disease by tub baths, and has advocated the universal use of showers to prevent this mode of transmission. In the present epidemic, it is evident that food has played an important part, becoming contaminated by the hands of carriers who are uncleanly in their personal hygiene. It would seem that this is to be the outstanding contribution from the Chicago epidemic, where it appears clearly established that the transmis-

sion by carriers in kitchens of hotels and restaurants is a very important consideration."

Now, just because 1 per cent or 5 per cent of the population harbor amebae, it doesn't mean that all these people are suffering from it. Craig, however, estimates that 30 per cent to 40 per cent present symptoms. Figures like Dr. Barrows', showing 8 per cent in 1000 consecutive admissions to Los Angeles General Hospital, can be interpreted in the opposite conclusion, namely, that their intestinal parasites are meaningless and cause no trouble.

Possibly a discussion of the symptomatology of amebiasis might help to make these statistics more convincing. I do not know what the usual history of cases of amebiasis in the tropics is. It is possible that these parasites enter the intestinal tract in much larger numbers from contaminated water supplies or other sources in tropical climates and thereby produce the acute fulminating symptoms of the disease which are so common there. But in this country the history of the average patient is that of an insidious onset of symptoms. I have seldom taken a history of a case of intestinal parasites that does not give a history of symptoms extending over a period of at least ten years. The longest period of symptoms that I can recall is that of a man who had a bloody diarrhea while on a mining trip in Old Mexico 39 years ago.

The commonest symptom of amebiasis is no doubt constipation, and this may be the only symptom present for years. A frequent complaint is alternating spells of diarrhea and constipation; or a patient may only mention a tendency to looseness. On the other hand, one may have many other symptoms of amebiasis with perfectly regular bowels and the attention may never be directed toward the colon.

Abdominal symptoms come next. It is surprising how many patients have intestinal parasites and never complain of abdominal distress. But if distress is present it may vary from attacks of cramping pains, which at times may be very severe, to a generalized soreness along the entire course of the colon. If attacks of cramping pains are present, there may be no tenderness or soreness of any kind between attacks. The commonest site of cramping pains is over the cecum and ascending colon. The next commonest site is over the sigmoid and descending colon. Because of these cramping pains in the region of the cecum, one of the first things that usually happens to amebic patients is out with the appendix. Pains in the region of the hepatic flexure simulate gallbladder attacks so frequently that few chronic cases of amebiasis escape without a cholecystostomy. Now this does not mean that these patients do not have chronic cholecystitis and chronic appendiceal disease. In fact, I doubt if many old chronic cases of amebiasis escape without some gallbladder pathology. And amebiasis should be considered one of the frequent etiological factors of cholecystitis. The point is that postoperative gallbladder cases who fail to improve should be suspected of having amebiasis. Such ordinary gastric symptoms as belching, regurgitation, hyperacidity, and nausea and vomiting may be present occasionally. Food selection is most typical of gallbladder disease, but some amebic patients are compelled to follow the bland type of diet. So the mere fact that ameba may be found in the stools is no reason that ulcer, gallstones, or even malignancy, is not present. I have in mind a man whom I examined four years ago, but who postponed treatment until this past spring, when he became much worse. After not responding to treatment, he went to Mayos' and they diagnosed and operated for malignancy of the colon.

The next commonest group of symptoms are what might be classed as nervous or neurological symptoms and the most frequent one here is headache. Amebic patients may have intense headaches at times. These headaches are usually associated with constipation or may develop soon after a meal, and are one of their most annoying complaints. After headache come various forms of neuritic, sciatic, rheumatic and arthritic pains. This is a time when many may claim that the findings of intestinal parasites in rheumatic and arthritic patients is just a coincidence. But it is surprising how many of these patients can be relieved when they are treated for their parasites. Barrows was one of the first to claim that intestinal parasites were a common etiological factor in arthritis. During a discussion of arthritis at the A. M. A. meeting in Dallas in 1926, Barrows commented on this point, only to be ridiculed. It is generally

agreed that the streptococcus is the cause of arthritis and it is not difficult to visualize a colon ulcerated by ameba as being the portal of entry for the streptococcus.

Under the heading of neurological symptoms, also come the mental symptoms that many amebic patients complain of. A peculiar malaise or melancholia is frequently observed. This may be due to the headaches which are so continuous in some patients, or to the abdominal distress, or to the extreme exhaustion which is so commonly present in these old chronic sufferers. Crying is not unusual and all these people can say is that they feel so badly all over that they are unable to do otherwise. Dizziness is another complaint, and so is a feeling of exhaustion for several hours after a bowel movement. Many of these symptoms must be due to toxic absorption from the ulcerated colon.

Another common finding in intestinal amebiasis is secondary anemia which may approach severity at times. A red count of 3,000,000 and hemoglobin of 60 per cent is very common. This is the result of loss of blood from the ulcerated wall of the bowel. These patients usually have repeated positive Weber tests for occult blood, and, if malignancy is out of the picture, ameba is the most likely cause. A rather profuse hemorrhage from the bowel is not uncommon, and the average patient will surmise that it came from an internal hemorrhoid, and, just as likely as not, a careful search for a bleeding pile through the proctoscope fails to reveal any evidence of bleeding. More or less mucus in the stools is usually found, but the presence of pus speaks against amebiasis. Eosinophilia, which was supposed to indicate intestinal parasites, probably has little significance. One of the less frequent symptoms of amebiasis is fever. If temperature is present it usually runs a characteristic curve. A constant daily rise of 99° to 99.6°. And another feature is that it seldom comes to normal even in the morning. An early morning temperature of 99° which goes up later in the day to around 99.6° is the rule. And if patients run a temperature, they are very liable to have night sweats. These are the patients in whom it is necessary to differentiate between tuberculosis and amebiasis, and it is not to be overlooked that, due to the frequency of these two diseases, every now and again a patient has both.

Amebiasis is not to be confused with the so-called idiopathic ulcerative colitis. This is a definite clinical entity in which Bargen claims to have isolated a specific diplococcus and he has had unusual results with vaccine therapy. But other investigators have had difficulty in duplicating his work.

There are occasional sporadic cases of bacillary dysentery in the Southwest, which has no connection with amebiasis. They are caused by the Shiga or Flexner bacillus and are detected by cultures from the stools. A condition that is of importance to those of us who reside in this desert area of the Southwest is this almost universal occurrence of spring dysentery. This is a condition which I believe very few inhabitants of this region escape. As far as I have been able to determine, this condition occurs in an area extending from the west side of the Rocky Mountains on the east, to and including the Imperial Valley on the west. It does not occur in Los Angeles nor the coast cities, but I have no idea how far north it may occur. This can have no connection with amebiasis nor bacillary dysentery because by far the greatest majority of the inhabitants have a dysentery lasting from 24 to 48 hours and recover without ill effects. Of course when a person who has amebic colitis is affected by this condition we may have a very sick patient; and this likewise applies to other invalids. It is difficult to attribute this condition to foods, as even nursing babies are afflicted with it, and another unusual feature is that passengers riding on transcontinental trains become afflicted as soon as they cross the Rocky Mountains and start crossing the desert. The only element I can see to which every one is so universally exposed in this area described, is the air. For that reason I have wondered if this might be an allergic condition produced by ingestion of large amounts of desert pollen from the air.

There are numerous other features of intestinal amebiasis of which time does not permit discussion here. And the treatment of this disease is still another chapter.

MALPRESENTATIONS AND THEIR MANAGEMENT

DUDLEY FOURNIER, M. D.
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(Read before the Staff Meeting of the Good Samaritan Hospital, Phoenix, Jan. 23, 1933.)

As this is quite a large subject to cover in the short space of time allotted, I am going to touch briefly on the more common malpresentations and their management.

The first will be persistent occipitoposterior position. In these cases labor is slower and longer; early rupture of the bag of waters is frequent and dilatation of the cervix is incomplete because the head does not fit well into the pelvis. The early diagnosis of this condition is made by the presence of freely movable soft parts above and just to the left of the umbilicus. Heart sounds are heard with maximum intensity in the flank. As regards treatment, what you do depends upon what nature has not done or is doing improperly. There is no arbitrary method of treating this condition. Treatment, when decided upon, should be directed toward the relief of retraction and accomplishing dilatation rather than toward securing anterior position for the presenting part.

If the head is arrested at the pelvis inlet, internal podalic version and breech extraction is the procedure of choice. With the head at the pelvic outlet and with relative inertia, the most satisfactory treatment consists in producing anterior rotation artificially. Manual rotation is difficult and often impossible if the head is large. With the head relatively small it may be fairly easily rotated, but the back and shoulders must be made to rotate anteriorly at the same time.

If forceps can be applied, the double application known as the Scanzoni maneuver is a familiar method of producing advance. I personally prefer the method of manual rotation and forceps to forceps rotation, for the following reasons: (1) By using the hand, the operator is able at all times to know whether the head is responding to manipulation or not. (2) If rotation is not easily accomplished at the level at which the head is found, the head may easily be shifted upward or disengaged, if necessary. If the latter is found necessary, prolapse of the cord must be watched for. Before proceeding to manual rotation and forceps, the head must be engaged and the second stage should not have been allowed to proceed so long that a contraction ring has formed. Ether anesthesia should be used, as we must have a large degree of relaxation.

Transverse presentation is a fairly common cause of dystocia. In the past seven years I have had six cases—two were delivered by cesarean section and four by version and extraction.

It is advisable to preserve the bag of waters, in cases of transverse presentation, until the cervix is completely dilated. This is best done by the insertion of a vaginal bag as soon as labor has become definitely established. It lessens the likelihood of early rupture of the bag of waters by exerting counter pressure on the membranes, preventing the shoulders from becoming wedged into the pelvis and, in the event the membranes do rupture, it impedes prolapse of the cord. As complete cervical dilatation is approached, the bag is usually expelled by the bulging membranes, when version and extraction may be readily affected.

In cases in which the membranes have ruptured early in labor or before its onset, the question of treatment is more difficult. When the undilated cervix is long and thick, the child viable and no contaminating examinations have been made, cesarean section would certainly seem to be the method of choice and particularly so if there is any degree of pelvic contraction. Low cervical cesarean section will be the type of abdominal delivery most often indicated. The intra-uterine bag has proved very unsatisfactory when used after the membranes have ruptured, as it predisposes to hourglass contraction of the uterus. This is an important cause of fetal death.

The chief danger to the mother in transverse presentations rests not so much in the mechanical difficulties associated with the transverse position of the fetus, but in certain accompanying conditions, particularly early rupture of the membranes, incomplete dilatation of the cervix, placenta previa—complications which are often the forerunners of intrapartum infection and rupture of the uterus.

A new product that has just been released by the Squibb Laboratories is Squibb Halibut-Liver Oil Concentrate Tablets with Viosterol 250-D. These highly potetnt, chcoolate-coated tablets will be prescribed by physicians as an alternative means of administering the vitamins of Viosterol-fortified Halibut-Liver Oil.

Each tablet equals in Vitamin A and D potency, 10 drops (approximately 10 mins.), of Squibb's Stabilized Halibut-Liver Oil with Viosterol 250-D. The vitamin-potetncy of the tablets is protected by the same methods that have been found to be so successful in affording similar protetctio nin the manufacture of Adex Tablets.

PUBLIC HEALTH NOTES

J. ROSSLYN EARP, Dr. P. H.
Director New Mexico State Bureau of Public Health

SYPHILIS

There is no task in the whole field of preventive medicine of more urgent social importance than the control of syphilis. Nor is there one, unless it be the prevention of diphtheria, which we can more hopefully undertake. Drs. Smith and Brumfield[1] have shown how cases of active syphilis may be detected. When brought under treatment these cases can rapidly be rendered non-infectious. By proper cooperation between health officials and practising physicians, it is possible to stamp out rapidly the existing foci of infection. However desirable it may be that the current sex mores of the population be revised, we are not bound to wait for such a revision before we put into effect our program of control. We can do it now. And if we should start now in a serious manner to assume this obligation, unemployment among physicians would be a thing unknown. Nor should the additional employment be entirely honorary, for the treatment of syphilis is plainly compensable from federal aid under Regulations No. 7.

Timely help is available to such a campaign through the recent publication of J. E. Moore's "The Modern Treatment of Syphilis."[2] No one who is treating syphilis can afford to be without this splendidly organized, thoroughly scientific and right up-to-date work. The author has drawn upon the experience of his own syphilis clinic at Johns Hopkins Hospital and also upon the results of many years of study by an important cooperative clinical group well known to every syphilographer. The book is not a discursive thesis but a complete system of didactic teaching. The continuous method of treatment is, for example, given unhesitating preference over the intermittent. Numerous tables summarize neatly the teaching on specific subjects, as for example the following on the principles of treatment of the syphilitic pregnant woman:

1. Treatment during pregnancy is for the child, not for the mother. Treat her later.
2. The aim is prevention of infection in the fetus if pregnancy is early; its "cure" if late.
3. Use maximum treponemicidal attack throughout.
4. Arsphenamine (606) is better than other arsenicals in this instance. Use it when possible.
5. Give a minimum of 3.0-4.40 gms. arsphenamine (10-40 doses) if time permits—but no matter how late, give some arsphenamine.
6. Plan treatment so that it starts and ends with arsphenamine—a few doses just before delivery.
7. Use some heavy metal—bismuth or mercury—in combination or alternation with arsphenamine.
8. Continuous treatment—no rest periods.
9. Don't fear treatment reactions unduly, but watch the mother's sclerae, urine, and blood pressure.
10. The fetus will not be harmed by treatment.
11. Study the infant by means of
    a. Cord Wassermann
    b. Placental histology
    c. X-ray of entire skeleton
    d. Pediatric follow-up for minimum of 6 months.
12. Treat the mother's syphilis after delivery.

The author quite definitely prefers the insoluble to the soluble salts of bismuth. New Mexico colleagues are asked to make a note of this when ordering bismuth for indigent cases through the state bureau of public health. We can supply a bismuth salicylate preparation at a small fraction of the cost to relief funds of the water-soluble salts. This preparation may need warming a little before it will pass through the needle but will otherwise give satisfaction.

DEEP BREATHING EXERCISES

Thirty or forty years ago we all were taught that deep-breathing exercises were valuable in the prevention of tuberculosis. The theory as it was stated to me in childhood was somewhat as follows: Tuberculosis begins in the lung apex. This is the part of the lung that is not used in quiet breathing. Therefore, breathe deeply and avoid tuberculosis. We now know that if it were true that tuberculosis began in the apex of the lung it would also be true that the more oxygen carried to the bacillus the more it would flourish. We also know that the best treatment for a tuberculous lung in any stage of the disease is not exercise but rest. It has been a source of recurring grief to me to read in school textbooks of hygiene the still repeated advice to practise deep breathing. But imagine my dismay when I read in Southwestern Medicine (and also in the Kiwanis Magazine) the advice of my friend Carl Gel-

lenthien of Valmora Sanatorium to practise deep-breathing exercises for the prevention of the common cold! Come forth now, ye advocates of puffing, and tell me why!

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"PUFFING AS A FINE ART"

CARL H. GELLENTHIEN, M. D.
Valmora, New Mexico

Deep breathing was included as one of eighteen points that I enumerated as having some value in the prevention of the common cold. I am sorry to read of the "grief" and "dismay" this recommendation for deep breathing has caused Dr. Earp.

While Dr. Earp's friendly and humorous criticism of my recommendation for the deep breathing exercises in prevention of the common cold is most welcome, unfortunately Dr. Earp received the impression from my article that I was talking about pulmonary tuberculosis, which, of course, contraindicates any deep breathing on the part of the patient. I do not believe that anyone is foolish enough to recommend, nor even seriously consider, deep breathing for tuberculosis, in the light of our present knowledge. Contrariwise, deep breathing exercise and "puffing" into Wolff bottles, and so forth, are definitely indicated in massive collapse of the lung and empyema. Do we not hear deep breathing advocated after abdominal operations in the attempt to prevent atelectasis? Does not the obstetrician strive to make the new-born infant breathe deeply, by making him cry, by change of position, by slapping, friction and bathing?

When we speak of the common cold, however, we are dealing with a disease, the cause of which we do not know, nor any scientific method of prevention, nor do we have any specific form of therapy. One thing we do know, however, and that is that the common cold is a disease and it is also common knowledge that we humans are more susceptible to disease when we are run-down or below par. There are some of us who are still old-fashioned enough to believe that a normal, robust, healthy individual has more immunity or resistance to disease. Deep breathing exercises are an attempt to keep the respiratory organs well exercised, well developed and to promote their approach toward the normal physiology. Deep breathing exercises, per se, are an attempt to cause a better ventilation of the lungs by expelling the stagnant supplemental air and replacing it with fresh air and so attempt to bring the physiology of the lower respiratory tract closer to normal. It is, of course, evident that when we recommend deep breathing we are attempting to increase the vital capacity of the patient's lungs. It is also fitting, at this point, that vital capacity and supplemental air be defined.

Howell, in the eleventh edition of his Text-book of Physiology, defines vital capacity as "the quantity of air that can be breathed out by the deepest possible expiration after making the deepest possible inspiration, and is used in the gymnasiums and physical examinations for this purpose." The supplemental air, he defines, "as the amount of air that can be breathed out after a quiet expiration by the most forcible expiration."

During the world war many phases of scientific investigation were stimulated tremendously. The very struggle for existence brought out from all nations the best that could be found and consequently many scientific facts were added to the store of knowledge of the human family. It was during this time that the vital lung capacity test found one of its most useful periods. For various branches of the service, men were needed in great numbers and time did not always permit a careful and complete physical examination; any test, therefore, which would quickly eliminate those afflicted with serious conditions of the heart and lungs was of great value. Georges Dreyer, working with the British forces, pointed out that the vital capacity test was being used as a routine in the examinations of candidates for the British Flying Service and that it served as a decisive factor in election to or rejection from that service. Dreyer states that "A definite minimum standard of vital capacity was fixed more or less arbitrarily for the admission of cadets to the Royal Air Force and standards were also decided upon for the grading of flying officers for different types of service. In laying down rules in this connection the question of the size of the man was entirely disregarded as of no consequence, and the standards were arrived at simply as the result of examining a number of successful pilots and determining the average vital capacity.

Dr. J. A. Myers, in the preface to his book, "Vital Capacity of the Lungs," states the following: :

"The study of the vital capacity of the lungs alike in health and disease has received widespread attention during the past decade. In the development of a new diagnostic test or the revival of an old one there is usually a group of individuals who grow over-enthusiastic and make extravagant claims for it, while another group of individuals minimize and discredit its value at every opportunity. The vital capacity test, since its scientific introduction of more than three-quarters of a century ago, has been the subject of extravagant promotion as it has of severe criticism. However, it has stood well the test of time and today is regarded by scientific investigators, internists, pediatricians and general practitioners as a valuable aid in diagnosis, prognosis and the guidance of treatment of certain diseases, particularly of the heart and lungs. An eminent surgeon has pointed out that even in operative work upon the chest many lives may be saved through a careful study of the vital capacity of each patient before operation; while another has

stated that a careful estimation of the vital capacity may closely parallel the results of a general examination and a recent study has shown that it may be of great aid to the surgeon in the determination of operative risks."

Myers has clearly shown that diseased individuals have a vital capacity ten to fifteen per cent lower than the normal for his class.

Dreyer believes occupation to be so important that he groups all people into three classes, which he designates as A, B, and C. In class A he places men in army or navy life; anyone who has had long military or naval training regardless of his previous occupation; policemen, athletes and active sportsmen; university students (playing games); firemen, blacksmiths and boilermakers. In class B fall professional people (doctors, lawyers); business men, railway men, high-grade mechanics and clerks of the upper class. In class C he places tailors, shopmen, shoemakers, printers, potters, clerks of a lower class and painters. Dreyer believes that individuals who spend considerable time in the open air playing games, may bring themselves into class A regardless of their occupations.

In other words, it is desirable to have a normal vital capacity, and deep breathing exercises in the fresh air are the means of procurement.

Dr. Myers also recommends as follows:: :

"The time is at hand when all persons should know their actual vital lung capacities, just as they should know their actual heights and weights. Any person who loses several pounds in weight has reason to seek the cause; so, also, any person whose actual lung capacity decreases more than ten or fifteen per cent has just cause for seeking investigation. Many persons would become familiar with their actual vital lung capacities if spirometers were made available as weighing scales are. To install accurate spirometers and tables with normal vital capacities and weights in many places where they would be available to the public, would be an excellent public health measure. To be sure, some method would have to be devised to insure a sterilized mouth piece for each person. Perhaps one could be made of heavy waxed paper and used as the paper drinking cup is today. The taking of one's vital capacity and its comparison with the theoretic normal is so fascinating as to insure extensive use of spirometers if they were made available to the public. Moreover, the readings obtained from scales and spirometers are so concrete as to be convincing to the ordinary citizen. I am convinced that such a method would result in bringing many who suffer from heart or lung disease for definite diagnosis and treatment long before they would, otherwise, present themselves. Thus many more persons would arrive while in the curable stages of disease."

To me, it seems good sense to recommend deep breathing exercises, and to stimulate the interest of the layman in his lung capacity. There is no question but that vital capacity of the lungs is of value in the diagnosis, prognosis and treatment of disease. In attempting to prevent a disease for which we have no scientific procedure, I shall continue to recommend deep breathing exercises for individuals without organic chest trouble because it will make the patient "fresh-air conscious" and tend to help him avoid infection by contact with the coughing and spitting of his fellowman, and tend to produce a normal respiratory tract physiology, and place the individual in class A of Dreyer's classification.

For anyone to believe that breathing deeply, per se, is a specific preventive for the common cold is utterly ridiculous.

Of the eighteen measures that I recommended in the outline for the prevention of colds, deep breathing exercises is but one, and I repeat again that at present we have no means nor procedure that has any scientific value in the prevention of colds. All we can do it to try and avoid infection and to have the individual of such robust vitality that if infection occurs his resistance will be adequate enough to promptly overcome the invader. I repeat this so that the reader may not gain the impression that the advice to breathe deeply was the sole method to attempt the prevention of colds.

If the advice to the patient to breathe deeply is pernicious, then so is the advice to develop a correct posture and the advice to keep his muscular system in tone by golf, horseback riding and other sports. In the prevention of an infection like the common cold, for which we have no scientific preventive nor specific therapy measures, I shall continue the attempt to make my patient physically robust and normal by advice to breathe deeply of clean fresh air, to maintain a correct posture, to exercise in the fresh air when possible, to eat and sleep properly, to keep his teeth in good shape and to abide by all the other rules of sane living.

And so, to my distinguished critic I say: "Be not dismayed, but go thou and puff likewise."

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A NEW SQUIBB SPECIALTY

Tablets Calcium Phosphate Compound with Viosterol—10 D Squibb is a new professional specialty that is now being marketed by E. R. Squibb & Sons. Each tablet contains 9 grains Dicalcium Phosphate, 6 grains Calcium Gluconate and 245 Steenbock units of Vitamin D. These tablets supply calcium and phosphorus in approximately optimum ratio (i. e., 1 to 1.625) and ample Vitamin D to facilitate their absorption and utilization.

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Sectional Meeting of the American College of Surgeons—Arizona, New Mexico. Western Texas

Phoenix, Arizona
March 16 and 17, ,1934

Arizona sunshine welcomed the opening of the convention with some of its warmest March rays—and remained at its brightest throughout the two-day convention.

Registration of surgeons and visitors attending the convention was taken at the Hotel Wesward Ho, in the lobby, beginning at 8 a. m. on Friday, and, starting at the same time operative clinics were held at both local hospitals. Student nurses were stationed in the lobbies of the hospitals to direct the visiting physicians to the operating rooms. During the course of the morning the following operations were performed by local surgeons: At St. Joseph's Hospital, pelvic laparotomy under spinal, phrenicectomy under novacaine, autogenous bone graft to spine under ether, appendectomy and herniorrhaphy under spinal, cholecystectomy under novocaine. ..At Good Samaritan Hospital: Two appendectomies, two pelvic laparotomies, and a tendon repair were performed. An attentive audience was found at each operation.

From 9 to 12 a. m. a Hospital Round Table Conference was held at the Hotel Westward Ho, conducted by Robert Jolly of Houston. As a basis for the discussion a list of questions was used which had been assembled pertaining to problems which have arisen in the hospital field during the past year.

From 12:30 to 2:30 p. m. the following Medical Motion Pictures were shown at the Hotel Westward Ho:

Infection of the Hand: Allen B. Kanavel, M. D., Chicago, Professor of Surgery, Northwestern University of Medicine School.

Circular Suture of Blood Vessels: Herbert Thurston, M. D., Indianapolis, Professor of Experimental Surgery, University of Indiana Medical School.

Hernia of the Diaphragm: Philemon E. Truesdale, M. D., Fall River, Mass., Surgeon Truesdale Hospital.

Repair of Ureterocele, Cystocele and Lacerations of Cervix. Harold O. Jones, M. D., Chicago, Associate Professor of Gynecology, Northwestern University Medical School.

At 2:30 p. m., Dr. Winifred Wylie, Arizona State Chairman, presided at a joint hospital conference consisting of doctors, trustees, superintendents, nurses and others interested. Dr. Malcolm T. MacEachern took the place of Dr. Franklin H. Martin in discussing the Hospital Program of the American College of Surgeons in Relation to Present Day Practice of Medicine and Hospital Care. Dr. Charles A. Dukes spoke on the Role of Our Hospitals in the National Recovery Act. Following Dr. Dukes, Dr. MacEachern discussed the Organization of the Various Departments of a Hospital and Their Proper Co-ordination from the Standpoint of Serving the Patient. He laid special emphasis on the obstetrical department, stressing the necessity of segregating the patients, personnel, and the delivery room from the rest of the hospital. Responsibility of the Medical Staff and Hospital Management in the Care of Cancer Patients was the subject presented by Dr. Robert B. Greenough. He talked of radical operations, the use of x-ray and radium in regard to adequacy of treatment, exploratory operations in doubtful early cases, and the advisability of keeping follow-up records on cancer cases. Mr. Robert Jolly, while not scheduled on the program, gave a very interesting explanation of the Group Hospitalization Plan. The Problem of Maintaining Maximum Efficiency at Minimum Cost in the Hospital Care of the Sick and Injured was discussed from the viewpoint of the medical staff by Dr. Edgar C. Yount of Prescott, Arizona; from the viewpoint of the hospital management by Mr. J. O. Sexton, Business Manager of the Good Samaritan Hospital, Phoenix, and from the viewpoint of the Nursing Staff by Miss Christine Ballman, R.N., Instructor of Nurses at St. Joseph's Hospital School of Nursing, Phoenix.

The Annual Meeting of the Fellows of the College was held at 5 p. m., the chief topics of interest being a report of activities of the college and election of state officers for Arizona. Dr. Win Wylie was elected chairman, Dr. John E. Bacon, councillor, and Dr. E. Payne Palmer, secretary.

On Friday evening at 8 p. m. a Community Health Meeting held at the Phoenix Union High School Auditorium, which has a seating capacity of 2150 drew a "full house" attendance. The audience exhibited a gratifying interest throughout the entire program which consisted of the following addresses:

The American College of Surgeons—Its Message for You: Franklin H. Martin, M. D., Chicago; Director General, American College of Surgeons.

Cancer—It Is a Curable Disease; Robert B. Greenough, M. D., Boston, President-Elect, American College of Surgeons.

Scientific Medicine—Its History: Howard C. Naffziger, M. D., San Francisco; Professor of Surgery, University of California Medical School.

Saving Your Eyesight: Edward H. Cary, M. D., Dallas; Professor of Ophthalmology and Otolaryngology, Baylor University College of Medicine.

Periodic Physical Examinations: Thomas M. Joyce, M.D., Portland: Associate Clinical Professor of Surgery, University of Oregon Medical School.

Diseases of the Throat: Gordon B. New, M. D., Rochester; Professor of Rhinology, Laryngology, and Stomatology, Mayo Foundation.

Charles A. Dukes, M. D., Oakland; Vice-President-Elect, American College of Surgeons.

(Continued to page 145)

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ARIZONA STATE MEDICAL ASSOCIATION

Forty-Second Annual Session
Prescott, June 7, 8 and 9

The completed program for the Annual Meeting of the Arizona Association was not quite ready for publication this month. It will appear in full in the May issue. Dr. G. H. Fitzgerald, of Tucson, who is the chairman of the Committee on Program, has again brought together a notable array of papers, a partial list of which follows:

Dr. George Colvard, of Deming, N. M., the Fraternal Delegate from the New Mexico Medical Society, will give a paper on "Rural Obstetrics—Delivery in the Home."

Dr. Frank Goodwin, Fraternal Delegate from the El Paso County Society, will present a paper on "A Bone Brace to Prevent Toe Drop in Paralytics."

Dr. Samuel D. Ingham, of Los Angeles, Professor of Nervous Diseases, University of Southern California Medical School, will give an address on "Neurologic Conditions Commonly Associated with Diabetes, Pellagra and Pernicious Anemia."

Dr. Arthur Smith, of Los Angeles, will give a paper on "Plastic Reconstruction Surgery of the Head."

Dr. Dudley Smith, of San Francisco, will give a paper on "The Menace of Rectal Suppositories—Care of Rectal Cases."

Dr. Howard K. Gray, of the Mayo Clinic, will give a paper on "Surgery of the Biliary Tract."

Dr. Louis B. Baldwin, of Phoenix, will write on "Treatment of Secondary Anemia."

Dr. Roy Hewitt, of Tucson, will write on "Proctoscopy as an Aid to Diagnosis."

Dr. John W. Flinn, of Prescott, will give a paper on "Anorexia."

Dr. M. I. Leff, of Glendale, Ariz., will give a paper on "Common Sense About Medical Ethics."

Dr. Emilio Urriolagoita, of Nogales, Sonora, Mexico, will present a paper on "Some Observations on Goitre Operations."

Dr. Howell Randolph, of Phoenix, will give a paper on "Pneumothorax Treatment in Acute Lobar Pneumonia, — Report on Eighteen cases."

Dr. R. K. Smith, of Tucson, will write on "Postpartum Hemorrhage."

Dr. C. A. Thomas, of Tucson, will write on "Collapse Therapy in Tuberculosis" and will show a thirty minute moving picture of Thoracoplasty.

Dr. R. F. Palmer, of Phoenix, will give a paper on "Rating Permanent Partial Disability by Functional Measurements."

Dr. W. Warner Watkins, of Phoenix, will give a paper on "Roentgen Therapy of Inflammations."

Dr. E. A. Gatterdam, of Phoenix, will give a paper on "Nasal Allergy."

Dr. W. O. Sweek, of Phoenix, will be on the program, title of paper not yet received.

Dr. Orville H. Brown, of Phoenix, will make a report, as Chairman of the Committee on Economics, to the open meeting of the House

of Delegates, bringing some important recommendations.

Very important matters relative to the medical work for the Industrial Commission will be brought before the Association, with recommendations for the consideration of the House of Delegates.

WOMAN'S AUXILIARY
Arizona State Medical Association

FOREWORD

The Woman's Auxiliary to the Arizona State Medical Association will hold its state convention in Prescott, June 7, 8, 9, 1934, and extends a hearty welcome to all guests, whether members of the Auxiliary or not. The meetings and entertainments are open to everyone, and we extend a special invitation to those not conversant with the aims and works of the Auxiliary.

May we hope the following program will be of such interest that the events planned will be largely attended, thus making the innovation of morning sessions in our convention a real success.

The Convention Committee.

PROGRAM
Headquarters: Hassayampa Hotel

Thursday, June 7

Registration of local and visiting doctors' wives.

Executive Board Business Meeting. Time and place announced later.

Friday, June 6

8:00 a. m.

Registration. Hotel Hassayampa.

9 a. m.

General Meeting. Mrs. C. R. Swackhamer, president, presiding.

Singing: "America."

Invocation.

Greetings of Welcome.

Response—Mrs. C. A. Thomas, Tucson.

Announcements by Local Convention Chairman.

Minutes of last State Meeting and Executive Board Meetings—Mrs. C. C. Craig, Phoenix.

President's Report—Mrs. C. R. Swackhamer, Superior.

Reports

Committee on Credentials and Registration.

President-elect—Mrs. J. M. Greer, Phoenix.

Corresponding Secretary—Mrs. O. W. Thoeny, Phoenix.

Treasurer—Mrs. W. A. Schwartz, Phoenix.

Standing Committees: Reports and Recommendations, five minutes each.

Organization—Mrs. J. M. Meason, Chandler.

Hygeia—Mrs. George C. Truman, Phoenix.

Public Relations—Mrs. C. V. Barley, Tucson.

Press and Publicity, Archives and Historian, Mrs. J. C. Wilson, Wilcox.

Legislative—Mrs. H. P. Mills, Phoenix.

Program—Mrs. J. M. Greer, Phoenix.

Unfinished Business.

New Business.

Reports of County Presidents.

Reports of Committee on Resolutions.

Reports of Nominating Committee.

Election of Officers.

Report of Delegates to National Convention at Milwaukee.

Saturday, June 9

Final Report of Committee on Registration.

"Report of an Active Auxiliary in Vienna, Austria"—Mrs. R. J. Morrisey, South Dakota.

Introduction of New Officers—Mrs. C. R. Swackhamer, Superior.

Post Convention Board Meeting — Mrs. J. M. Greer, presiding.

Entertainments

Several delightful affairs are being planned by the Prescott ladies.

Officers and Committee Chairman

President—Mrs. C. R. Swackhamer, Superior

President-Elect—Mrs. J. M. Greer, Phoenix

Recording Secretary—Mrs. C. C. Craig, Phoenix

Corresponding Secretary—Mrs. O. W. Thoeny, Phoenix.

Treasurer—Mrs. W. A. Schwartz, Phoenix.

Advisory Council

J. D. Hamer, M. D., Phoenix

R. D. Kennedy, M. D., Globe

H. P. Mills, M. D., Phoenix.

Chairman of Standing Committee

Hygeia—Mrs. George C. Truman, Phoenix.

Legislative—Mrs. H. P. Mills, Phoenix.

Press and Publicity—Mrs. John Wilson, Wilcox.

Public Relations—Mrs. C. V. Barley, Tucson.

E. MEAD JOHNSON

Announcement has come of the death on March 20th, of Mr. E. Mead Johnson, President of Mead Johnson & Company, of Evansville, Indiana.

The medical profession of the country will sorrow at the receipt of this news, because they have lost an understanding friend and an earnest co-worker. It is difficult for manufacturers to maintain ethical standards in business relations and in advertising which will meet the requirements of medical practice. This was accomplished by Mead Johnson & Company, under the direction of their president, and for this the organized profession will ever hold him in grateful memory.

CHARLES L. HATHAWAY

In the death on March 25th, of Dr. Charles L. Hathaway, of Winslow, Arizona, one of the few remaining pioneer medical practitioners of northern Arizona passed away. Dr. Hathaway was born in 1872, graduated from the Keokuk Medical College, College of Physicians and Surgeons, Keokuk, Iowa, in 1902, locating in Arizona the following year. He has practised continuously in northern Arizona for thirty years or more. He was one of the charter members of the Navajo-Apache County Medical Society.

Dr. and Mrs. Robert B. Homan, of El Paso, announce the forthcoming marriage of their daughter, Mary Virginia Homan, to Dr. Allen Clay Gwinn, Jr., to occur on April 25th in El Paso.

THE EL PASO COUNTY MEDICAL SOCIETY

(Reported by Leslie M. Smith, M. D., Secretary)

February 26, 1934

Para-urethral Ducts: Their Relation to Gonorrhea. W. R. Curtis, M. D., El Paso, Texas.

Case Report: Cardio-spasm. E. J. Cummins, M. D., El Paso, Texas.

Case Report: Adenoma of Ampulla of Vater. J. Mott Rawlings, M. D., El Paso, Texas.

The El Paso County Medical Society met February 26, 1934, at Hotel Hussmann at 8 p. m.; the meeting was called to order by Dr. E. W. Rheinheimer.

Para-urethral Ducts in Their Relation to Gonorrheal Urethritis, was given by Dr. Curtis. The paper emphasized the importance of para-urethral infection as a focus for chronicity of a gonorrheal urethritis. The paper was discussed by Dr. Strong.

Dr. E. J. Cummins gave a Case Report: Cardiospasm. The definition, etiology, and symptomatology of the condition were outlined in Dr. Cummins' paper. In discussing the treatment of the condition, the Russel Plumber dilator was exhibited by Dr. Cummins to the society. In the case reported, one dilation was sufficient to completely relieve the patient of symptoms. The discussion was opened by Dr. Gorman and was further discussed by Dr. Vandevere and Dr. Strong.

Dr. J. Mott Rawlings gave an interesting Case Report of Adenoma of Ampulla of Vater. The case was discussed by Doctors Lynch, Rigney and Gorman.

Doctors Y. M. Milam of Fabens, M. L. Alexander of Canutillo, and G. F. Brooks of Ysleta, were elected to membership.

Communication was read from the El Paso Times asking the society to donate $50.00 to help defray expenses of getting out a paper (5,000 copies) containing, in the rotogravure section, pictures of the campus of the College of Mines. The communication stated that the Times did not intend to make any money on the publication but that the College of Mines would benefit by sending out the papers to advertise the school. The question was discussed by Doctors Vandevere, Prentiss, Waite, McCamant, George Turner, and Rigney. It was moved by Dr. Cummins and seconded by Dr. Waite that the society give the $50.00. The motion was carried.

The society adjourned at 10 p. m.

March 12, 1934

Program: Symposium on Cancer of Cervix and Uterus.

Discussion of Surgical Aspects: James Vance, M. D., El Paso, Texas.

Discussion of Radio Therapy: J. W. Cathcart, M. D., El Paso, Texas.

Discussion of Pathological Aspect: W. W. Waite, M. D., El Paso Texas.

The El Paso County Medical Society met March 12, 1934, at 8 p. m. at Hotel Hussmann.

Dr. James Vance stated that surgery has little place in cancer of the cervix and uterus. In early cases radium and deep x-ray offer the best hope. Late cases are hopeless as to cure. But radiation is the treatment of choice for palliation.

Dr. J. W. Cathcart stressed the prevention of cancer by the repair and cure of all cervical conditions. Cancer of the vulva is usually of the basal-cell type and surgery is usually the treatment of choice. In the vagina radium is the best treatment, as the mortality is high. In the cervix, 85 to 90 per cent of the cases examined are beyond the first stage.

Dr. W. W. Waite stated that cancer of the cervix is common but cancer of the body of the uterus rare. Early cases of cancer of the fundus are usually easily cured. The three types found in the cervix are: (1) squamous-cell, cauliflower-like growth which is the least malignant; (2) the flat ulcerative type which is more highly malignant; (3) adenocarcinoma.

The Canti film of the American Society for the Control of Cancer was shown and explained by Dr. L. O. Dutton.

The papers of the symposium were discussed by Doctors J. L. Green, L. O. Dutton, Paul Gallagher, Paul Rigney and, in closing, by Doctors Cathcart and Waite.

Dr. James Vance reported a case of left inguinal hernia in a boy. On operation the sac was found to contain a tough band apparently connected to the umbilicus. It was thought to be some fetal remains.

Dr. Gallagher reported a case in which the x-ray

was that of a carcinoma of the lesser curvature of the stomach. At operation a large nodular liver was found. The patient went into coma and died. The spinal fluid did not contain blood. The cause of death is unknown. The pathological report was interstitial hepatitis. No carcinoma was found.

The secretary read a letter from the State Health Officer relative to the health and sanitary improvement program being carried on through the C.W.A. Dr. T. J. McCamant stated that the health work of the C. W. A. in El Paso County has not met with any reduction. He suggested that a resolution of appreciation of the fact be sent to the relief administrator in this county. This was then put in the form of a motion, seconded, and passed. Dr. Gallagher moved that the committee on relief work handle this matter. This motion also was seconded and passed. A letter was read from the Bureau of Communicable Disease Control requesting that physicians take more pains with the examination of food handlers. Dr. F. D. Garrett stated that amebic dysentery has been on the increase. He stressed examination of food handlers with this in mind, as a means of eliminating the disease. Dr. McCamant said that the examinations given food handlers were not as thorough as they should be. He is of the opinion that these examinations should be done by private physicians and not by the health department. He reminded the society that amebic dysentery is a reportable disease. Dr. McCamant moved that the society notify the Bureau of Communicable Disease Control that El Paso physicians are taking this matter seriously and are making proper examinations.

Dr. Gallagher stated that it should not be the work of the health department to make these examinations. Dr. McCamant moved that the medical society accept the responsibility for examination of food handlers, the health department to discontinue this work. The motion was seconded and carried.

The society adjourned at 10 p. m.

Sectional Meeting of the American College of Surgeons—Arizona, New Mexico, Western Texas

(Continued from page 141)

Doctors, Patients and Hospitals: Robert Jolly Houston; President-Elect, American Hospital Association.

Good Hospital Care—Talking Motion Picture presented by Malcolm T. MacEachern, M.D., Chicago.

Saturday morning the convention was resumed by surgical clinics in both local hospitals with the following operations being performed: St. Joseph's Hospital: Intrapleural pneumolysis under novocaine anesthesia, bilateral thyroidectomy and excision of isthmus under gas anesthesia, electro-coagulation of the vulva and perineum (condyloma) under gas anesthesia, excision of cervical polyp and electro-coagulation of the cervix and cervical canal under

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gas anesthesia, hysterectomy, thoracoplasty. At At Good Samaritan Hospital: Cholecystectomy and pelvic-laparotomy under novocaine anesthesia, repair of ventral hernia under spinal anesthesia, mastoidectomy and detached retina operations and demonstrations of re-attached retina three weeks after operation.

At 9 a. m. a Hosptal Conference was held in the assembly room at Good Samaritan Hospital. Demonstrations and round table conference dealing with departmental activities and various phases of hospital standardization and administration were conducted by Dr. Malcolm T. MacEachern, assisted by Mrs. J. O. Sexson, Superintendent of the hospital, and heads of various departments. Mrs. Sexton discussed the Business Department—its methods used in meeting present financial conditions, hospital insurance schemes, collections, future plans if present economic conditions continue, and hospital costs. The Clinical Records Department was next represented by Mrs. Betty Murray, Record Librarian of Good Samaritan Hospital; she stressed the importance of convincing the physician himself of the value of complete records. Dr. S. I. Bloomhardt talked on The Hospital Records—the possibility of national standardization of records, and Dr. Robert Flinn emphasized the value of the record to the physician, comparing its value with that of the stethoscope. There was considerable general discussion concerning the problems met with in the keeping of records. The Nursing Department, organization of the various nursing units, ratio of nurses to patients, supervision of nursing service, and nursing costs, was a subject well covered by Miss Edna McDonald, R. N., Nursing Supervisor at Good Samaritan Hospital and supplemented by a short talk by Miss Christine Ballmann, R. N., Instructor of Nurses at St. Joseph's Hospital. Mrs. Adelaide Jeffries, representing the dietitian of Godd Samaritan Hospital read a paper discussing the Dietary Department, departmental control and management, food costs, and economics. Considerable discussion followed concerning the various methods of preparing food for the patient. A tour of the hospital completed the program.

From 10 to 12 a. m. the Cancer Clinic, held in the Nurses' Home of St. Joseph's Hospital, drew an interested audience of doctors and nurses. Twenty-two cases of various types of malignancies were demonstrated, in all but two the patients themselves being present. The patients were arranged in groups according to the type of malignancy they represented but were presented singly. A brief summary of each history was read by a member of the local Cancer Clinic. When practical the lesion was exhibited and examination allowed. Following this, each case, Dr. Greenough discussed the diagnostic possibilities, and the indications and contraindications for treatment of them. The cases represented malignancies of the bladder, testis, prostate, femur,

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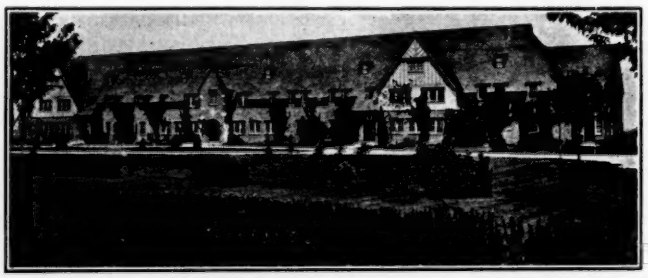

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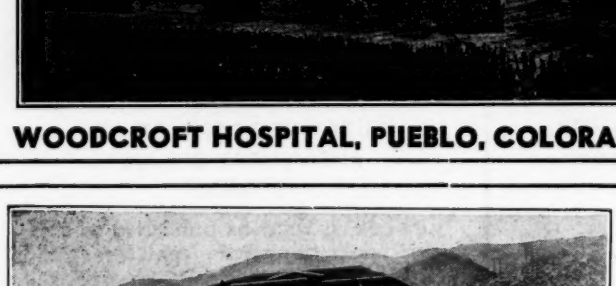

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Medical Director

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Medical motion pictures were shown from 12:00 to 2 p. m. at the Hotel Westward Ho and consisted of the following:

Simple Goiter (1 reel, silent): George W. Crile, M. D., Cleveland, Director of Cleveland Clinic Foundation.

Subtotal Abdominal Hysterectomy for Uterine Fibroids (2 reels,sound): Harold O. Jones, M. D., Chicago, Associate Professor Gynecology, Northwestern University Medical School.

Prolapse of the Uterus (2 reels, sound): Philemon E. Truesdale, M. D., Fall River, Mass., Surgeon Truesdale Hospital.

Normal Labor (3 reels, silent): Joseph B. DeLee, M. D., Chicago, Professor Obstetrics and of Gynecology, Chicago University Medical School.

Saturday afternoon, at St. Joseph's Hospital, a program somewhat similar to the one held at the Good Samaritan Hospital in the morning, was held, varying in the respect that a different group of departments were represented bringing in different types of problems. Dr. MacEachern conducted the program. The Obstetrical Department was represented by Mrs. Roberta Rumble, R. N., Supervisor of Maternity who discussed the organization and management and procedure with patient in labor, morbidities, etc. Miss Lula Crockett, R. N., Assistant Supervisor of Surgery, read a very complete summary of the supervision, standardization of routine procedures, sterilization, anesthesia, control of surgery, records, costs and charges of the Surgical Department of St. Joseph's Hospital. The Central Supply Room, its location, organization, functions, and advantages were demonstrated in a brief written and an informal oral discussion by Miss Gertrude Kleinheinz, R. N., Senior Nurse in charge of St. Joseph Hospital central supply room. Exhibition of sample intravenous, hypodermoclysis, dressing trays, etc., lent a practical atmosphere to her discussion. The Clinical Laboratory, its location, supervision, personnel, routine examinations, records and reports, costs and charges were explained in a very complete outline by Miss Laura F. Celaya, R. N., Clinical Laboratory Technician of St. Joseph's Hospital. Mr. Paul Duffy, x-ray technician of St. Joseph's Hospital, spoke on Fracture Service, its organization facilities, and records. As an interesting finale to the program a talking motion picture entitled Good Hospital Care and a silent motion picture illustrating the Mechanism of the Heart Beat and Electrocardiography were presented by Dr. MacEachern.

The Saturday afternoon scientific session combined the announced General Surgical Section and the Eye, Ear, Nose and Throat Section,, ,and the following program was presented:

The Cervical Rib Syndrome, With and Without Cervical Ribs: Howard C. Naffziger, M. D., San Francisco; Professor of Surgery, University of California Medical School.

Transurehtral Prostatic Resection: David M. Davis, M. D., Phoenix.

Results in the Treatment of Carcinoma of the Breast: Thomas M. Joyce, M. D., Portland; Associate Clinical Professor of Surgery, University of Oregon Medical School.

Retinal Detachment: the Newer Developments in Surgical Procedures: D. F. Harbridge, M. D., Phoenix, Arizona.

Chest Surgery and the General Surgeon: Chas. A. Dukes, M. D., Oakland, California.

Results of Intrapleural Pneumolysis: Victor Randolph, M. D., Phoenix, Arizona.

A dinner was served at 6:45 p. m. at the hotel and the convention was brought to a close with the following program which began at 8 p. m.:

Treatment of Cancer of the Breast: Robert B. Greenough, M. D., Boston.

Small Intestinal Tumors: Thomas M. Joyce, M.D., Portland.

Practical Consideration in the Prevention of Defects in the Skull and Their Repair: Howard C. Naffseiger, M. D., San Francisco.

Telplasms Within and Around the Eye: Edward H. Cary, M. D., Dallas, Texas.

Current Problems in Reconstruction Surgery of the Face: Gordon B. New, M. D., Rochester, N. Y.

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BOOK REVIEWS

THE 1933 YEAR BOOK OF GENERAL MEDICINE, edited by Geo. F. Dick, M. D., Professor of Medicine, University of Chicago; Attending Physician Billings Memorial Hospital; Lawrason Brown, M.D., Chairman of Medical Board, Trudeau Sanatorium, Saranac Lake, New York; Geo. R. Minot, M. D., S. D. Professor of Medicine, Harvard University; Director, Thorndike Memorial Laboratory, Boston City Hospital and Wm. B. Castle, M. D., Associate Professor of Medicine, Harvard University Associate Director Thorndike Memorial Laboratory Boston City Hospital; Wm. D. Stroud, M.D., Professor of Cardiology Graduate School of Medicine, University of Pennsylvania; Geo. B. Eusterman, M.D., Chief of Section in Medicine, Mayo Clniic; Chief of Gastro-Enterologic Clinic; Associate Professor of Medicine, University of Minnesota (Mayo Foundation); The Year Book Publishers, Inc., Chicago, Ill.

For every physician who does general medicine and especially for internists this handy volume is almost indispensible; this statement is predicated upon the thought of up-to-dateness being a prime necessity and desire of every physician.

Suppose for example that one has a case of secondary anemia (hypochromic anemia seems to be a preferable term) who is not doing well. By a few minutes reading in this volume one may find abstracts of various papers and learn that many cases require as much as six grams of iron and ammonium citrate by mouth per day before good results are obtanied. The ordinary intravenous administration of iron products is inadequate as a rule only because the dosage is inadequate.

Or suppose one has been asked to open a discussion dealing with hypertension. In this book will be found abstracted articles written during 1933, on the subject.

There is no end to the wealth of material in the book. It is good for a week or a month's reading and is equivalent to a three months post-graduate course.

O. H. B.

Histeen.— 'Histeen" is a newcomer in the "patent medicine" field. It is put on the market by the Histeen Corporation of Chicago. According to the state records Joseph B. Creevy is the president of the concern and also one of the three directors. The Histeen advertising declares that hay-fever and pollen asthma are due to histamine poisoning and that Histeen is a compound which 'acts to counteract histamine poisons, neutralize its action and release the irritating effect of histamine." From an analysis made in the A.M.A. Chemical Laboratory it seems that this "amazing new direct relief" has for its chief ingredient, making up nearly 60 per cent of Histeen, antipyrine, which has been used by physicians for nearly fifty years and has been prescribed for the purpose of giving symptomatic relief in certain forms of asthma and hay fever for almost as long. In addition it cointains phenobarbital (Luminal), as well as ephedrine, a substance that enters into an enormous number of proprietary remedies for the symptomatic relief of hay-fever and asthma. And this mixture of well known drugs is claimed to be the alleged discovery of a "Chicago specialist" who will not allow his name to be used because he is afraid of hurting his 'ethical standing!" The statement is made that three tablets four times a day may be "taken with perfect safety as long as required." Obviously, from the analytical work done, the person who takes Histeen gets 4 grains of antipyrine with each tablet, and where he takes three tablets four times a day he has a daily intake of 48 grains of antipyrine! He also gets in the same period about 2½ grains of phenobarbital and about 1½ grains of ephedrine. Summed up then, it seems that, essentially, Histeen is a secret mixture of three well-known drugs ,all of them potentially dangerous in the hands of the untrained. Further, the nostrum is recommended in dosages that a physician with any regard for his patient's safety and his own reputation would hesitate to prescribe. (Jour. A.M.A., October 14, 1933, p. 1251).

TREATMENT IN GENERAL PRACTICE: By Harry Beckman, M. D., Professor of Pharmocology at Marquette University, School of Medicine, Milwaukee, Wis. Second Edition, Revised and Entirely Reset. 889 pages. W. B. Saunders & Co., Philadelphia and London, 1934. Cloth, $10.00 net.

The publishers of this volume state that the first edition broke all records for sales of a book of this kind. The new second edition was entirely re-written, and contains hundreds of new and approved treatments.

However pressing may be the need for books on pathology, symptoms and diagnosis, what the busy practitioner wants in the final analysis is a treatment, or a book to which he may turn and find information about a remedy with dosage. If there is no treatment which can be depended on, the candid statement "there is no effective treatment," is refreshing and final, even if it is disappointing. It leaves the venturesome practitioner free to try anything he wants.

The book takes up the diseases under the following heads, and gives definite information about the treatment of each of the diseases ordinarily listed under these heads: Infectious Diseases, from anthrax through mycoses to yellow fever; Allergy; Deficiency Diseases; Diseases of the Gastro-Intestinal Tract; Respiratory Tract; Kidney; Blood Forming Organs; Circulatory System; Thy-

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Johnson Grass — March Nov., relieved by Bermuda ext.	Russian Thistle — June, Aug.
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The book is pre-eminently for the general practioner, but every doctor could find much of interest in it. W. W. W.

WHAT EVERY WOMAN DOESN'T KNOW —HOW TO GIVE COD LIVER OIL.

What Every Woman Doesn't Know is that psychology is more important than flavoring in persuading children to take cod liver oil. Some mothers fail to realize, so great is their own distaste for cod liver oil, that most babies will not only take the oil if properly given but will actually enjoy it. Proof of this is seen in orphanages and pediatric hospitals where cod liver oil is administered as a food in a matter of fact manner, with the result that refusals are rarely encountered.

The mother who wrinkles her nose and "makes a face" of disgust as she measures out cod liver oil is almost certain to set the pattern for similar behavior on the part of her baby.

Most babies can be taught to take the pure oil if, as Eliot points out, the mother looks on it with favor and no unpleasant associations are attached to it. If the mother herself takes some of the oil, the child is further encouraged.

The dose of cod liver oil may be followed by orange juice, but if administered at an early age, usually no vehicle is required. The oil should not be mixed with the milk or the cereal feeding unless allowance is made for the oil which clings to the bottle or the bowl.

Mead's 10 D Cod Liver Oil is made from Mead's Newfoundland Cod Liver Oil. In cases of fat intolerance the former has an advantage since it can be given in ⅓ to ½ the usual cod liver oil dosage.

AMERICAN MEDICAL GOLFERS PLAY IN CLEVELAND, JUNE 11th.

The American Medical Golfing Association will hold its twentieth annual tournament at the Mayfield Country Club in Cleveland on Monday, June 11, 1934.

Thirty-six holes of golf will be played in competition for the fifty trophies and prizes in the eight events. The trophies include the Association Championship for thirty-six holes gross, the Association Handicap Championship for thirty-six holes net, the Choice Score Handicap Championship for thirty-six holes gross, the gross Eighteen Hole Championship, the low net Eighteen Hole Handicap Championship, the Maturity Event limited to Fellows over 60 years of age, the Oldguard Championship limited to competition of past presidents, and the Kickers Handicap. Other events and prizes will be announced at the first tee.

Dr. Homer K. Nicoll of Chicago is president and Dr. Charles Lukens of Toledo and Dr. John W. Powers of Milwaukee are vice presidents of the American Medical Golfing Association, which was organized in 1915 by Dr. Will Walter. Dr. Wendell Phillips and Dr. Gene Lewis, and now totals 1,100 members representing every state in the union. The living past presidents include Dr. Wendell Phillips of New York, Dr. Thomas Hubbard of Toledo, Dr. Fred Bailey of St. Louis, Dr. Edward Martin of Philadelphia, Dr. Robert Moss of San Antonio, Dr. Charlton Wallace of New York, Dr. Will Walter of Chicago and Charlottesville, Va., Dr. James Eaves of San Francisco, Dr. Chester Brown of Danbury, Conn., Dr. Samuel Childs of Denver, Dr. W. D. Sheiden of Rochester, Minn., Dr. Walter Schaller of San Francisco, Dr. Edwin Zabriskie of New York, Dr. Frank Kelly of Detroit and Dr. John Welsh Croskey, Philadelphia.

Cleveland Committee

The Cleveland Committee is under the chairmanship of Dr. John B. Morgan, 1301 Medical Arts Building, Cleveland, Ohio. He will be assisted by Drs. R. H. Birge, A. V. Boysen, E. F. Freedman, F. T. Gallagher, Secord Large, E. P. McNamee, J. J. Marek, Theodore Miller, U. V. Portman and M. A. Thomas.

The Mayfield Country Club of Cleveland is described by Chairman Morgan as "probably the finest course in the district, and certainly one of the most interesting. Many championships have been held on this course, and I am sure the visiting doctors will be delighted with it in every sense of the word. It has a most beautiful club house, and we can promise a merry nineteenth hole and a dinner fit for a champion."

Application for Membership

All male Fellows of the American Medical Association are eligible and cordially invited to become members of the A. M. G. A. Write the Executive Secretary, Bill Burns, 4421 Woodward Avenue, Detroit, for an application blank. Participants in the A. M. G. A. tournament are required to furnish their home club handicap, signed by the secretary. No handicap over 25 is allowed, except in the Kickers.' No trophy is awarded a Fellow who is absent from the annual dinner.

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Whether the book is technical or historical, genealogical or literary, or just a school book, through which a grown-up wants to recapture his youth by re-reading, the American Library Service has built up a system adept at finding it.

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The many advantages in infant feeding of a high quality evaporated milk, such as Borden's, have been described in numerous reports of extensive clinical investigations. During the period from 1929 to 1932, inclusive, no less than 43 papers on the properties and uses of evaporated milk appeared in the scientfic literature, while in 1933 there were 21 additional papers on this subject in medical and technical magazines.

The most recent report on the successful clinical use of evaporated milk is that of Quillian in the Journal of the Florida Medical Association for January, 1934. As a result of his experience with 173 infants on evaporated milk compared with 167 on other formulas, this writer states that, "The chief advantages of the use of evaporated milk are ease of preparation, ready digestibility, economy, and safety," and he also concludes that, "———properly modified, evaporated milk may be considered a satisfactory food for infants."

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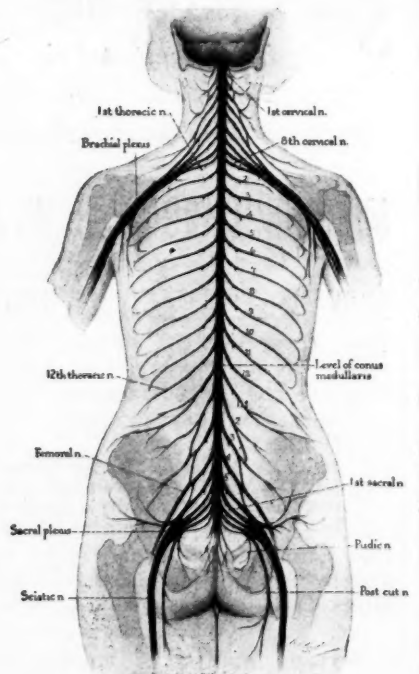

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